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THE VETERINARY JOURNAL

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A Monthly Review of Veterinary Science.

Editors:

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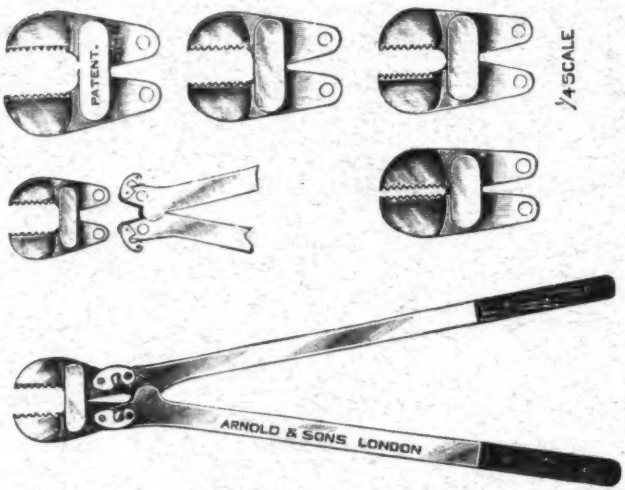

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CONTENTS.

PAGE

EDITORIALS—
Dr. Fred. Torrance, Veterinary Director-General to the Canadian Government 447
To the Student about to enter the Profession 448

GENERAL ARTICLES—
Blindness from Optic Neuritis, without Intracranial Disease, in a Pedigree Bull. Other cases in members of the same Pedigree. By E. NETTLESHIP, F.R.S., F.R.C.S., M.R.C.V.S., and A. C. HUDSON 450
A New Cylicostome Worm from the Horse in London. By R. T. LEIPER, D.Sc., M.B., F.Z.S. 460
The Proposed "Veterinary Surgeons Act" of New South Wales. By T. G. PALGRAVE, M.R.C.V.S. 463

CLINICAL ARTICLES—
Emaciation and Death associated with Necrosis and Abscess Formation in the Spleen of a Horse. By LIONEL B. BULL, B.V.Sc. 464
Rupture of the Diaphragm. By Chief Veterinary Surgeon DRECKERT ... 468
On the Treatment of Indurations and Thickenings of the Skin and Subcutis in the Limbs of Horses. By Staff Veterinary Surgeon MICHAELIS 469
Influenza amongst Remounts and its Treatment with Salvarsan. By Staff Veterinary Surgeon JÄGER 470
An Improvised Chloroform Inhaler. By C. E. HILL, M.R.C.V.S. 471
Paralysis of the Internal Popliteal Nerve in Cattle. By R. H. SMYTHE, M.R.C.V.S. 472
A Case of Intussusception in a Bullock. By W. D. LINDSAY, M.R.C.V.S. 473
Parasitic Cyst in the Brain of a Heifer. By H. A. REID, F.R.C.V.S., D.V.H. 474
Sarcosporidia of the Œsophagus of a Sheep. By W. D. LINDSAY, M.R.C.V.S. 476
Some Cases of Tetanus in the Pig. By JOHN B. YOUNG, F.R.C.V.S. ... 476

FELINE CLINICALS—
Wasp Sting. By T. G. PALGRAVE, M.R.C.V.S. 477
Supernumerary Digits in a Cat. By F. C. MINETT, B.Sc., M.R.C.V.S. ... 478

A DISEASE OF POULTRY. By R. H. SMYTHE, M.R.C.V.S. 480

PARLIAMENTARY—
A Bill to Amend the Law relating to the Slaughtering of Animals for Human Food 481

ABSTRACT—
Treatment of Hæmoglobinæmia of the Horse by Infiltration of Air under the Skin 484

REVIEWS 485

TRANSLATION—
Count Cesaresco and the "Calculating Horses"... 490

PERSONAL 494

LETTERS AND COMMUNICATIONS, &c. 494

BOOKS AND PERIODICALS, &c., RECEIVED 494

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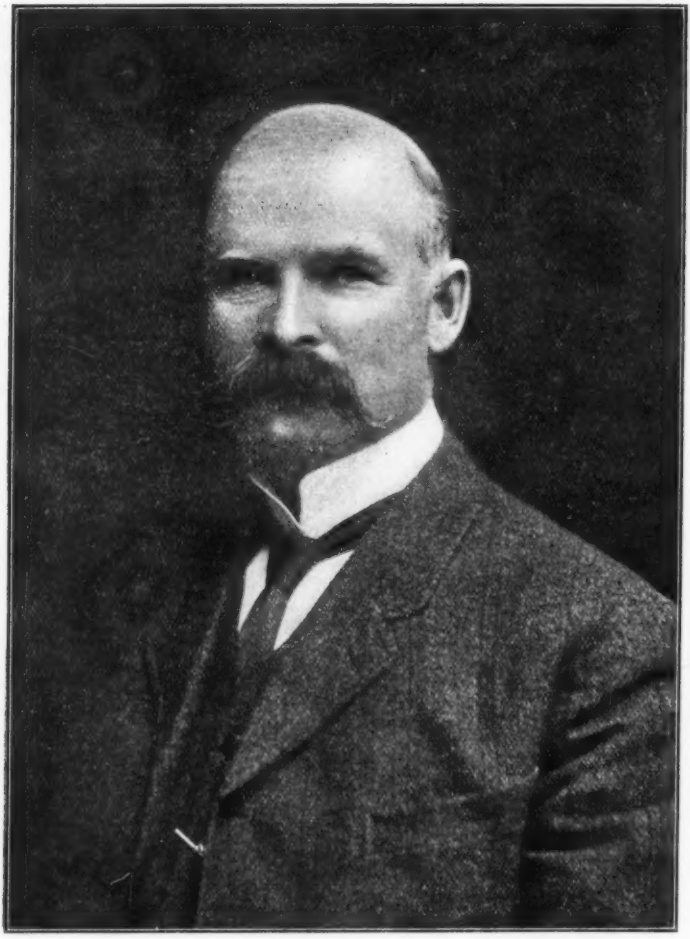


F. Torrance

MR. FREDERICK TORRANCE.

Director-General of the Veterinary Department of the Canadian Board of Agriculture.

THE

VETERINARY JOURNAL

OCTOBER, 1913.

Editorial.

DR. FRED. TORRANCE.

VETERINARY DIRECTOR-GENERAL TO THE CANADIAN GOVERNMENT.

PROBABLY we may be excused for saying that when Dr. J. G. Rutherford resigned the appointment of Veterinary Director-General to the Canadian Government it was thought that there would be great difficulty in filling his place and that it would be a difficult task for anyone to become the successor of such a popular man. It was, therefore, a source of much gratification to the profession that the selection fell upon Dr. Frederick Torrance, as it was felt that there was no one so ably fitted from his professional ability and genial temperament and tact to satisfactorily fulfil the duties of so onerous a position.

Born in Montreal, of Scotch parentage, Dr. Torrance received his scientific training at the McGill University, and graduated as a veterinary surgeon from the Montreal Veterinary College. Starting in practice at Brandon in 1882, he stayed there for a few years, and in 1897 moved to Winnipeg, where he made a very large practice. In 1906, when the Manitoba Agricultural College was opened, he was made Lecturer in Veterinary Science, and in 1908 was elected Professor-in-Charge of that Department. His change of residence to Ottawa has been very much regretted by his colleagues and old students, and it is probably not too much to say that he was the most popular teacher in the College. For some years he has been Secretary of the Manitoba Veterinary Association, and a few years ago was selected as a member of the International Commission elected to investigate Tuberculosis. Only recently he was sent over to England by the Government

to investigate and exchange views with his colleagues here regarding epizootic abortion of cattle, and we hope to see him again next year as one of the Canadian delegates to the International Veterinary Congress. His position as head of the Canadian Veterinary Department is one of great honour and responsibility, and we are quite sure that the safety of the stock of the country is in excellent hands.

TO THE STUDENT ABOUT TO ENTER THE PROFESSION.

THE Colleges are now re-opening, and occasionally during the past few months opinions and letters have appeared in the veterinary and lay press criticizing our present and future position. The present moment is admirably suited for a criticism upon ourselves, and although the horse has diminished in numbers and motor traction has come to stay, there is not only no cause for alarm as to whether a good living is to be earned or not, but there is actually a shortage of qualified men suitable to occupy decently salaried positions (Government and otherwise) which are at the present moment unfilled. What is more, there is every reason to foresee that the opportunities will increase both in value and in numbers, not only in Great Britain, but especially in our Colonies. In countries like South Africa and Australia, where breeding and pastoral pursuits form such an integral part of the life of the country, the health of the animal population is worth looking after in the best possible way, and the best possible way involves the skilled advice of the veterinarian. Those in authority now universally acknowledge this, and as a consequence another outlet has been afforded to those of our graduates whose circumstances or tastes incline in that direction. A comfortably paid position, with regular hours, a divided responsibility, and an assured pension on reaching middle age, is not at all a bad prospect for a young fellow with limited capital to look forward to, and that such appointments are to be obtained, in fact are frequently awaiting suitable applicants, is a well-known fact.

In private practice it is equally a complaint that assistants are almost unobtainable, and even for well-paid positions where one might expect to pick and choose a little, the choice is not there

to be made. Surely this points to the general prosperity of the profession; in fact, those who have watched its career during the past twenty years can honestly say its prospects were never brighter, and to what causes may we legitimately attribute it? The colleges have not the numbers of students which they had twenty years ago, and to that, although perhaps bad for colleges where support depends upon students' fees, may be attributed some measure of the present-day prosperity. It is a compensatory measure to counterbalance the loss of thousands of the equine patients; as, although we have now less patients to treat, it must not be forgotten that there are less graduates to treat them.

Canine practice has come forward by leaps and bounds, for dogs and cats now form a very important portion of the town practitioner's *clientèle*, and as it is the town practitioner who has felt the effect of the arrival of the motor the most it is to canine patients that they look to replace the deficit.

Cattle are still with us, but, more important than all, the country is not flooded with graduates eager to settle down and start practice, so that there is not the opposition nor the fear of opposition such as existed in days gone by; whilst as still further evidence of prosperity it is now becoming quite rare to find a general practitioner who does not own a motor-car.

Take the numbers of students examined during the past six years, as given in the recent Annual Report of the Royal College of Veterinary Surgeons. In 1906 it was 648; in 1908, 531; in 1910, 468; and in 1912, 428, a steady decline and diminution of some 34 per cent. in seven years of the competitors for daily bread with those already graduated. In 1912, 85 men qualified, in 1911 only 72, and about 75 can really be taken as a fair average of the last ten years, whilst the death-rate is approximately the same, or really slightly higher. Thus our numbers do not grow, some classes of our patients have gone, others have developed, but (more important than all) the salaried appointments under Government have increased enormously, and it is to these and to the Army that our young graduates look.

Suppose we take the number 75 as a fair average of the numbers who enter the profession, and do not at all take into consideration the deaths—allow them to be pitted against the loss of patients brought about by motor traction—what do we find left

to enter the competitive ranks of private practice? The Army and the Indian Civil Veterinary Department absorb an average of ten men each year; South Africa, New Zealand and other Colonies take fully fifteen more; ten obtain either Government or municipal appointments in the British Isles; ten at least go to their fathers' practices; five probably have too much money or too little brains and never do anything; and this leaves only twenty men each year to obtain assistants from or to settle down for themselves in general practice. It is not enough, and although at present the shortage is only beginning to be felt, the next ten years will demonstrate it more and more. For those now in the profession the prospects were never brighter, and to those about to join we say that their choice, provided they have a liking and a natural aptitude for their work, is good, and bid them welcome.

General Articles.

BLINDNESS FROM OPTIC NEURITIS, WITHOUT INTRACRANIAL DISEASE, IN A PEDIGREE BULL. OTHER CASES IN MEMBERS OF THE SAME PEDIGREE.*

By E. NETTLESHIP, F.R.S., F.R.C.S., M.R.C.V.S.,
Hindhead, Surrey,
and A. C. HUDSON.

[Although cases of amaurosis in all animals are well known in veterinary practice, it is of interest to note the observations of such a well-known ophthalmic specialist as Dr. Nettleship, who, by the way, holds the veterinary diploma as well as that in human medicine.—Eds., *V.J.*]

Case 1.—The case, which was followed to a finish, and upon which opportunity was afforded to make a *post-mortem* examination, was a pedigree Guernsey bull (No. 2,329 in the Herd Book of the English Guernsey Cattle Society), born in November, 1910.

He was perfectly well in all ascertainable respects until he was 11 months old, when, without warning, he became very rapidly and totally blind, and remained so without showing any other symptoms whatever until he was killed, rather more than three

* Abstract from the Royal London Ophthalmic Hospital Reports, vol. xix, Part I.

months after the onset of the blindness, and when between 13 and 14 months of age.

The history in detail is as follows: On Monday, November 6, 1911, when let out of his loose box into a paved yard for exercise as usual, he ran about and behaved in all respects as if perfectly normal, and during that day "went for" his food as usual; two days previously, when his owner, Mr. Boscawen, happened to be passing the yard, the bull had recognized him. Next morning (7th), when the door of the loose box was opened, the animal refused to come forward as usual to be watered, but when he had smelt his way to the bucket he took the water as eagerly as ever; the keeper concluded that the bull was blind. On 9th, Mr. Chetwood-Aiken saw the animal. He found the pupils widely dilated and quite motionless even to the light of a powerful electric torch thrown into the eyes from 2 or 3 in. distance, the loose box being darkened. The animal did not appear in the least conscious of the light, and it was evident from his behaviour that he was quite blind. Only a partial ophthalmoscopic examination was possible, as the bull would not keep still when he had become aware (probably by his sense of smell or hearing) of the presence of a stranger; but although the optic discs were not seen, the retinal vessels that came into view looked normal, *i.e.*, were neither tortuous nor very large; the media were perfectly clear, and the eyes free from congestion or irritation. Nothing more of importance occurred; the bull remained quite well and took his food with appetite when it was brought up to him, but not the slightest recovery of sight took place, and on February 19, 1912 (3½ months after onset), he was killed, by being stunned without perforation of the skull, and then bled. The brain and eyes were removed immediately and placed in a large quantity of 10 per cent. solution of formol; an accidental cut was made in the brain, but this did not interfere seriously with the subsequent examination.

This young bull had not been used, and, indeed, had not come to full sexual maturity. Very full and careful inquiry, in which his owner gave us every possible assistance, quite failed to throw any light upon the cause of the blindness. The animal's diet and habits had been like those of a full-grown bull living in the next loose box, whose sight remained unaffected. The possibility of lead poisoning was gone into in great detail, and no possible source of it could be even suspected. There were no signs of

digestive or intestinal disturbance at any time. The state of the dentition was not recorded.

No similar case had ever been known on the farm, although Mr. Boscawen had been an owner and breeder of these cattle for twenty years.

Although it is certain that this animal had good central vision on November 6 and was blind the next morning, it is, of course, quite possible, and indeed one inclines to say probable, that some loss of the fields of vision had been going on before, and that the final total blindness represented the extinction of the last remaining portion of the fields.

The brain showed no tumour or meningitis, and was macroscopically normal in all parts.

The right eye was divided in sagittal, the left in equatorial, section. On macroscopic section both optic discs were seen to be triangular in outline, with apex upwards, and markedly swollen and opaque, the retinal veins full and the arteries almost invisible. The anterior parts of the eyes appeared in all respects normal.

The central portion of the right eye with the adjoining optic nerve, the separated posterior portion of this nerve, and the left optic nerve were embedded in celloidin for microscopical sections. Sections of the globe were cut in a sagittal, and of the nerves in transverse plane, and, for purposes of comparison, corresponding sections were prepared from a normal bull's eye similarly fixed and embedded. The posterior portion of the left globe was preserved as a museum specimen.

Microscopical Appearances.—Median sagittal sections of the right globe were stained with hæmatoxylin and eosin, and with hæmatoxylin and van Giesen's stain. The optic papilla is markedly swollen, the swelling extending into the neighbouring retina for a distance of 1 mm. above, and 0·5 mm. below, the margins of the scleral opening. The summit of the swelling projects 0·5 mm. above the level of the neighbouring retina. The swelling is determined mainly by an œdematous condition of the tissues of the papilla which has produced a forward projection of its surface, and upward and downward displacement of its margins. In the more peripheral parts of the papilla this œdema has resulted in a vacuolated appearance of the tissues, evidenced by the presence of clear spaces of variable form and size bounded by

a delicate reticulum. In the more central parts the disorganization of the tissues is even more pronounced, the spaces here being more or less completely filled by a granular *débris*, and bounded by an ill-defined and often defective reticulum. The nervous tissue has undergone almost complete disorganization, while the supporting tissue is hypernucleated and very considerably increased in amount.

The œdematous condition met with in the papilla is found also in the retina, but is seen here to involve chiefly the nerve fibres and ganglion cell layers. In the former layer the nerve fibres are degenerated, while the supporting neuroglial tissue is increased in amount. The retinal veins are distended, but neither veins nor arteries exhibit obvious structural changes in their walls; there is, however, some slight leucocytic infiltration of the walls and of the immediately adjacent tissues. In the ganglion cell layer the almost complete disappearance of the ganglion cells is very striking, and is associated with a condition of considerable œdema together with the presence of large spaces which apparently mark the sites of the pre-existing ganglion cells. Occasionally within these spaces remnants of ganglion cells are encountered in the form of shrunken masses of granular protoplasm surrounding a small distorted nucleus. The retinal œdema extends to the inner reticular, and, to a very limited extent, to the outer reticular layer; the nuclear layers are, however, unaffected. The degenerative changes evident in the rods and cones have probably resulted from *post-mortem* change. The choroid, and the anterior parts of the eye, present no obvious abnormality.

The two optic nerves, cut in transverse section, are found to exhibit identical pathological changes. Sections stained by Weigert's myeline sheath method reveal very extensive degeneration of the nerve fibres. This degeneration, although more pronounced in some regions than in others, is, on the one hand, not limited to any definite area of the sections; while, on the other hand, none of the primary nerve fibre bundles is exempt from it. In order to ascertain whether the degenerative changes were more advanced in the anterior or in the posterior portion of the nerve, sections were made of the left optic nerve both immediately behind the globe and at a distance of about 1 in. from it. Comparison shows that there is little difference in the appearance at the two points, the degeneration being, however, if anything,

more pronounced in the posterior (proximal) than in the anterior (distal) part of the nerve. In the Weigert stained specimens, side by side with the nervous degeneration a hypertrophy of the neuroglial supporting tissue is very evident, especially in the periphery of the primary nerve bundles. In sections stained by hæmatoxylin and eosin and by hæmatoxylin and van Giesen's stain the neuroglial cells are more clearly differentiated, many of them having a large ceil body and large faintly staining nucleus. The tissues of the pial sheath and of the mesoblastic septa of the nerve show no obvious abnormality in structure or in amount; the small blood-vessels which they support are, however, much more evident than in the normal nerve. The endothelium of these blood-vessels is considerably proliferated, and their walls are thickened and of hyaline appearance. Both in the walls of the blood-vessels and in their immediate neighbourhood there is slight leucocytic infiltration.

Sections through the chiasma stained with hæmatoxylin and van Giesen's stain show proliferation of neuroglial tissue, apparently associated with degeneration of nervous tissue. There is well-marked leucocytic infiltration around all the blood-vessels, but the pial sheath is free from inflammatory infiltration. In sections through the corpora quadrigemina, dentate nucleus of the cerebellum and bulb there is no obvious abnormality.

As to the etiology of the pathological changes in this case, it is impossible to speak in more than general terms. The diffuse distribution of the œdematous and other changes within the globe, and the extensive distribution of the degenerative lesions in the nerve tracts behind the globe, suggest some cause acting in both these situations simultaneously. The changes in the blood-vessel walls of the optic nerves are suggestive of a toxic agent, acting through the blood-stream, and have perhaps some analogy with the changes in these vessels which have been met with in lead poisoning. It seems likely, therefore, that the blindness in this case resulted from some subacute form of poisoning, which had acted in a selective manner on the nervous tissues of the retinæ and optic nerves; but what the precise nature of the poisonous substance may have been, and whether self-produced or derived from without, it is impossible now to decide.

The subject of Case 2, France's Sequel, was born in Guernsey on July 22, 1903, and became blind when about 2 years old. It is

thought that the onset of the blindness was gradual, but as the herdman who looked after him has left, and there is no one at Tregothnan who remembers the particulars, we cannot say more. It is said that he suffered a good deal from looseness of the bowels. He had served several cows before he became blind, and continued to be used freely afterwards until he was sold to the butcher, probably at about 3 years of age. He did not recover any sight. Nothing is known of blindness in any of his progeny.

Case 3.—Godolphin Hero 2nd was born in Cornwall, and bought when 6 months old by Mr. J. Jacka, of Trewidden Farm, Penzance. When 12 months old he went "suddenly" blind. Mr. S. J. Motton, veterinary surgeon, of Penzance, saw him on September 11, 1911, almost immediately after the blindness came on, and found "the pupils widely dilated, and both eyes quite insensitive to light, media clear, and nothing wrong made out with the ophthalmoscope; health good, no symptoms of gastric, intestinal or cerebral disorder," but when loose in his box he went round and round always in the same direction. As a rule was tied up. When at exercise one day appeared to be all right, the next day was blind. Treated with strychnia and iodide without result. Never regained vision. Appetite and health continued good. Was kept for a year, *i.e.*, till he was 2 years old, and became the father of several calves. When about 2 years old he was killed, and the butcher found nothing that he recognized as wrong in any part of the carcase. The progeny of this animal are reported to be doing well, but we have no details.

In respect to food, this bull was brought up by hand with milk for about six months, then some bran, crushed oats and barley and roots; and for a time, whilst being got up for show, had a daily allowance of about 3 lb. of a well-known compound cake,* but was not over-fed. It may be mentioned that he was exhibited at an agricultural show after he had become blind.

Cases 4 and 5, Masher 7th and France's Masher, may be taken together, as both belonged to the same owner, were nearly of the same age, and went blind at or about the same time. They were born some years before the subjects of any of the other cases.

* This cake is stated to be composed of cotton seed, locust bean, rice, grains, soya bean, rape seed, kapok seed ("silk-cotton," *Eriodendron anfructuosum*), and molasses. I have heard that cake containing these ingredients has been suspected of being sometimes injurious to stock fed with it, but there appears to be no proof.

Case 4 was born on March 16, 1896, Case 5 in June, 1896; there was thus about three months difference in their ages. Mr. Alfred Le Patourel, of Ramée, Guernsey, who bred and owned these two bulls, writes (August 29, 1912) that so far as he can remember they were fed and treated alike in all respects and not fed on very concentrated food. They were habitually tied side by side in a double stall. Nothing unusual occurred until the bulls were respectively about 11 months and 14 months old, when one morning about the end of April they were both found to be blind. Mr. Le Patourel, writing from memory, states that "we noticed they were both blind the same morning," adding as evidence (1) that they appeared not to see their usual buckets of drink and finally upset them, spilling the contents over the attendant, and (2) that, when being led out of the stable for exercise soon afterwards, they banged against the sides of the stall, apparently because they could not see. Subsequently when tethered out at grass each of them walked round in a circle "making a beaten track at rope's length," and when on several occasions the owner, in order to find out whether they were recovering their sight, placed himself quietly in front of them "they would simply go straight into me and shop short as if unnerved." One of them "in walking round had a peculiar way of drawing out his tongue and working it on both sides of his lower jaw." The veterinary surgeon who was called in asked about the feed and other conditions, but found nothing to criticize, and considered the blindness due to paralysis of the optic nerve.

Mr. J. F. Bullar, of Southampton, was in Guernsey at the time, and made an ophthalmoscopic examination of both these bulls not very many days after the onset of the blindness; and he wrote to E. Nettleship (September 5 and 12, 1912) that he remembered the cases very well both as to the history and as to what he found. His account is that "the man who looked after them thought they were all right at night, but the next morning when he gave them some food in a bucket they could not find it, and knocked it over with their noses." "The eyes appeared" to Mr. Bullar "natural externally." "I examined them," he goes on, "with the ophthalmoscope without any difficulty as they were quite blind and took no notice of the light. There did not seem to me to be any sign of disease in the fundi, but as a bull's

fundus was a novelty to me I asked them to bring a heifer into the shed. She was not a very steady patient, but I got a view of the fundus after a bit, and it was just like the bulls'. I could not find anything to account for the blindness; the bulls had been quite well and had only become rather poor since the blindness, as it seemed to interfere with their grazing." Although Mr. Bullar does not mention the optic discs his examination of the eyes of the bulls and of the control normal heifer was evidently careful and persevering, and we can safely assume that the discs were seen and were practically alike in appearance in all the three animals.

Mr. Le Patourel kept these two bulls for about two months after the blindness came on and then, despairing of their recovery, sold them to the butcher. He tells us he has never seen any other cases like these.

It will be noticed that the mode of onset of the blindness was exactly the same in these two bulls as in Case 1, sight apparently good one evening, quite gone the next morning.

Case 6 was that of a cow calf belonging to Viscount Falmouth, whose steward, Mr. W. Nixon, has kindly given us what information is available. In the spring of 1910, when 6 weeks old or rather more, the calf went blind. The blindness lasted a week or ten days, and the calf then regained her sight, but died a week or two afterwards. The suspicion at the time was that the whole illness had been caused by wrong feeding, and inquiry showed that the man in charge had been in the habit of boiling the "separated" milk on which the calf was fed instead of only raising it to the temperature of new milk. It was suspected that the deaths of some other calves had been caused in the same way. Whether this supposition is correct or not the case evidently differed in its clinical features from the previous one, although occurring in a member of the same pedigree.

Case 7, from notes by Mr. S. J. Motton, of Penzance, is probably quite different in nature from any of the previous ones. This animal is a heifer of the Jersey breed; but both her parents were born in England, the sire at Pangbourne, Berkshire, the dam at Yeovil, Somerset. The calf herself was born near Penzance. Her diet and mode of life differed in no way from that of other animals of her age in the same herd. Early in

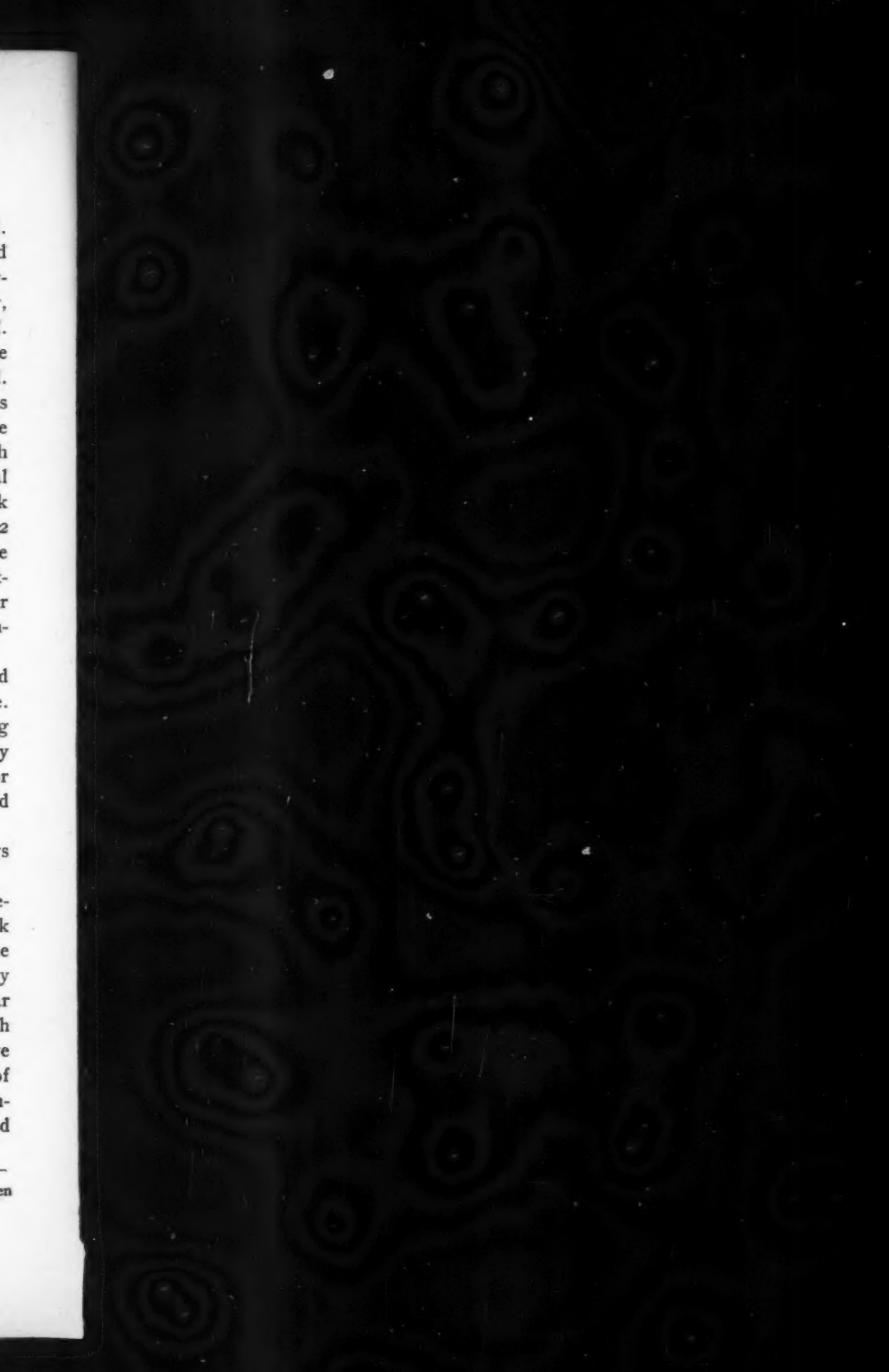
October, 1912, when 5 months old, she was taken suddenly ill. Mr. Motton saw her immediately and found her lying down and unwilling to rise; pulse, respiration, temperature, and fæces normal. When compelled to get up and walk her gait was unsteady, and she repeatedly knocked herself against the walls of the stall. The pupils were widely dilated and insensitive to light, and she was apparently quite blind, but externally the eyes looked normal. She would eat nothing. During the next few days she was generally lying down. On the third day of the illness a profuse muco-purulent discharge appeared at the nostrils. On the 14th day this discharge had ceased, she had recovered her normal appetite, and vision was returning. At the end of the third week she walked steadily and could see well. On December 11, 1912 (two months after onset), and again on January 12, 1913, she appeared to be in good health and to see quite well. The treatment consisted of moderate doses of bromide of potassium for the first two or three days, and iodide of potassium with strychnine for a fortnight after that.

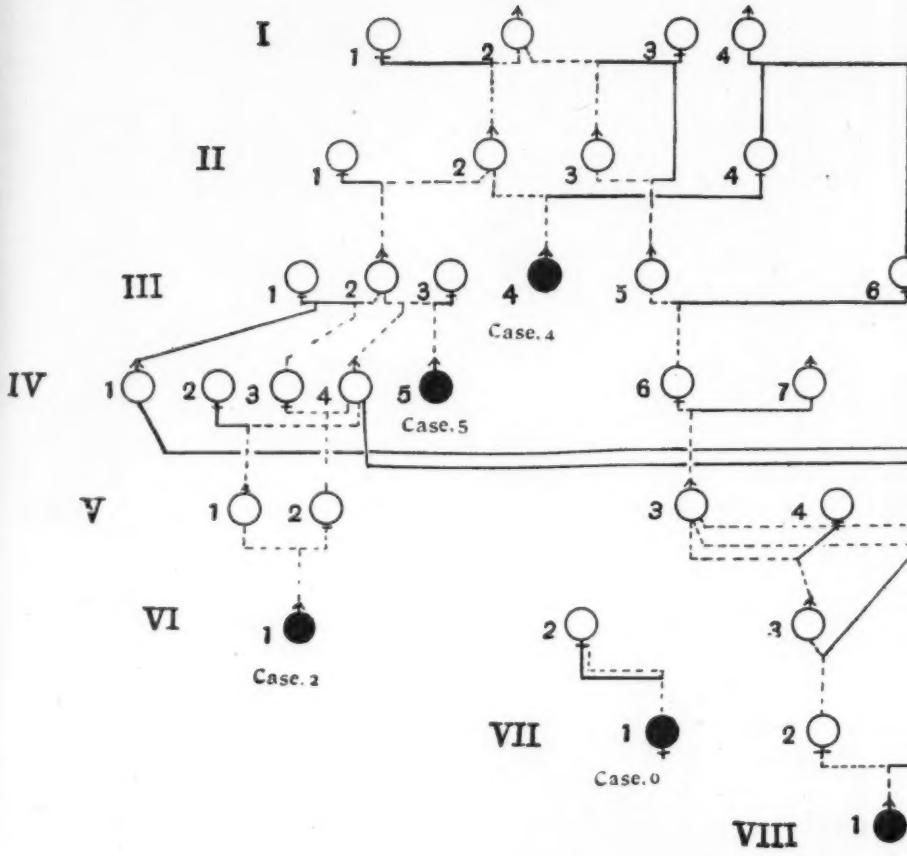
In this case we cannot doubt that the loss of sight was related in some way to the illness, and especially to the nasal discharge. The catarrh might conceivably operate indirectly by producing a toxic condition and causing a toxic optic neuritis; or directly by extending to (or commencing in) the sphenoidal sinus,* or some analogous situation nearly related to the chiasma, and causing a purely local retro-bulbar optic neuritis.

It should be added that the herd to which this animal belongs is very healthy and free from tuberculosis.

Case 8.—This case, which seems to differ from all the preceding ones, has been kindly communicated by Dr. W. Clark Souter, of Aberdeen. The subject was a male calf of the Holstein (black and white) breed, and his parents were bred by Mr. George Findlay, of Stonehaven, Kincardineshire. His near forbears, also born in Scotland, were not closely inbred, though all were pedigree animals. Mr. Findlay, who owns a large number of Scottish-bred pure Holsteins, has never had a case of tubercle in his herd. There is no reason to suspect lead poisoning. No similar case of blindness in cattle has ever been heard of by Mr. Findlay.

* The skull of the adult ox contains a large sphenoidal sinus, but we have not been able to ascertain the earliest age at which a definite cavity is found.





DESCRIPTION OF FIGU

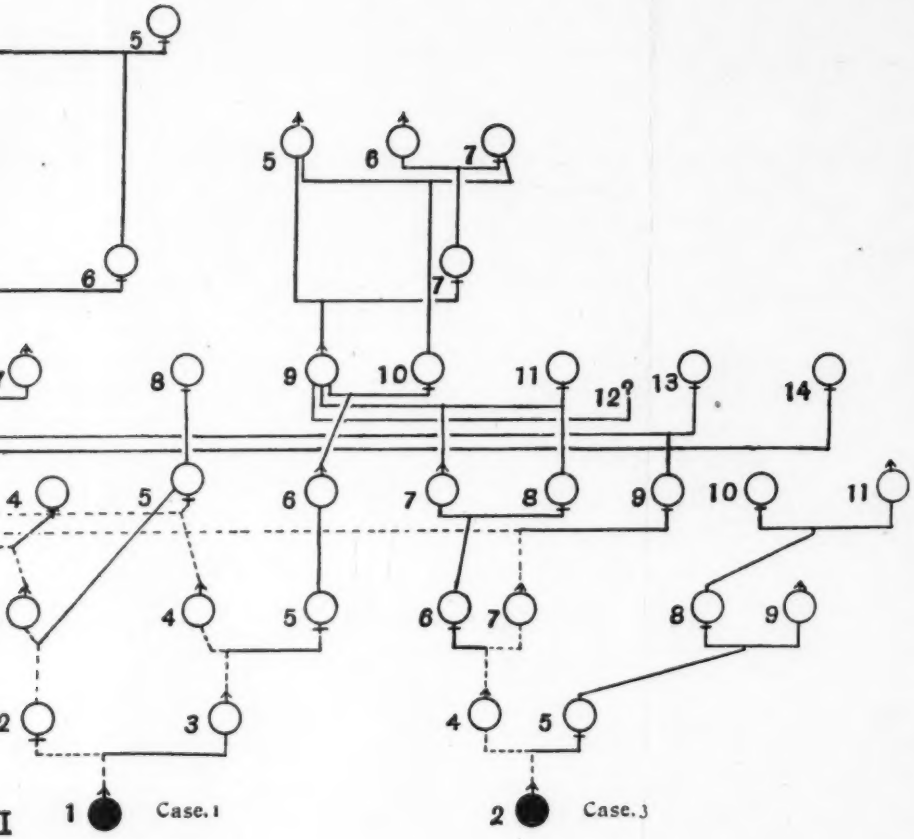
The broken lines show that the blind individuals (●), Cases 1, 2, 3, 4 and 5, are descended from I, 2. Ca

Index to the Individuals shown on th

P. = Pedigree stock. F. =

Generation I, 1, No. 1091 F. of Herd Book*; 2, Rydale,† 475 P.; 3, 1629 P.; 4, 537 P.; 5, 1659 F.
Generation II, 1, 1923 P.; 2, Masher, 705 P.; 3, Rydale 3rd, 767 P.; 4, 2958 P.; 5, 885 P.; 6, 663 P.;
Generation III, 1, 3533 P.; 2, Masher 2nd, 858 P.; 3, 3018 P.; 4, Case 4, Masher 7th, 1014 P.; 5, Rydal
Generation IV, 1, 1065 P.; 2, 3739 P.; 3, France 6th, 4620 P.; 4, France's Masher 2nd, 1102 P.; 5, Case
9, 988 P.; 10, 3891 P.; 11, 3892 P.; 12, ? No.; 13, 3206 P.; 14, 3778.
Generation V, 1, Masher's Sequel, 1266; 2, France 11th, 4621; 3, Governor of the Chene, 1297 P.; 4, 206
Generation VI, 1, Case 2, France's Sequel, 1661; 2, Mrs. Grundy, 3897; 3, Majesty of Ida Cottage, 1902;
8, 6147; 9, 1664.
Generation VII, 1, Case 6, died as a calf, unnamed; 2, Primrose du Gree, 8103 P.; 3, Governor 2nd of the
Generation VIII, 1, Case 1, Lord Rosebery, 2329; 2, Case 3, Godolphin Hero 2nd, 2137.
It is quite possible that I, 2, may be related to more individuals in the pedigree than are shown to be connecte

* Some of the numbers here given refer to the Herd Book of the Royal Guernsey Agricultural Society,
† The names are quoted only for those joined by the broken lines.



ION OF FIGURE.

I, 2. Case 6 is also known to be descended from I, 2, but the exact connection has not been ascertained.

uals shown on the Pedigree, Fig. 1.

tock. F. = Farm stock.

, 1659 F.

.; 6, 663 P.; 7, 1876 F.

P.; 5, Rydale 5th, 982 P.; 6, 2958 P.; 7, 3210.

02 P.; 5, Case 5, France's Masher, 1010 P.; 6, Richesse du Chene 8th, 4004 P.; 7, 1076 P.; 8, 2277 F.;

297 P.; 4, 2069 F.; 5, 2206 F.; 6, 1110 P.; 7, 1264 P.; 8, 174 F.; 9, 5301 P.; 10, 4813 P.; 11, 1569.
ottage, 1902; 4, Conqueror 2nd, 320 F.; 5, 2306 F.; 6, 5828 P.; 7, Golden Hero of L'Etienne, 1507 P.;

or 2nd of the Gree, 2160 P.; 4, Golden Hero of the Vauxbelets, 1929; 5, 6881.

to be connected with him by the broken lines.

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cultural Society, others to the entirely separate Herd Book of the English Guernsey Cattle Society.

The calf was born in July, 1912, at full time and after a natural labour. He showed no deformity, defect, or peculiarity, and had the normal black and white coat-colour of the breed. Fed from birth onwards with milk from a pail, the milk not necessarily, or not all, coming from the mother; no artificial foods used; mother at pasture both before and after the calf was born. The calf was never out of its loose box. It is believed on account of its behaviour that the calf was blind of both eyes from the first, and that he remained so until he was killed for veal at 12 weeks of age. He throve well, had no loss of power in limbs, nor any peculiarities of behaviour or movement, and seemed to make up for lack of sight by hearing and smell. Used to knock up against things, and at first did not run after the food-bucket as calves do when fed, but soon learnt to be as sharp as others, apparently by the aid of hearing. All who saw or had to do with the calf judged him to be quite blind, although the eyes looked, to lay observers, quite normal. No veterinary advice appears to have been asked, and Dr. Souter unfortunately did not hear of the case until after the animal had been killed.

This animal was its mother's second calf; she was 3½ years old in August, 1912. Her first was a heifer calf born in August, 1911, and quite normal. Both were by the same father, who was, like the dam, about 3½ years old in August, 1912.

The five pedigree cases, 1, 2, 3, 4, and 5, were bulls, and in four of them the blindness came on at practically the same age, within a month or two of one year; in all five it was permanent; in none were there any other symptoms referable to the nervous system, unless the tendency to walk round and round in a circle, or the habit of making some peculiar motion with the tongue, mentioned in some of them, is to be regarded as such; none of them showed any signs of illness, and in none was there anything suspect in the diet, with the possible exception of a particular cake that was given to Case 3. Two of them had progeny after the blindness came on. The singular fact that in Cases 4 and 5, belonging to the same owner, the blindness came on at the same time to a day, if we can accept the history, seems to point strongly to a poison of some kind associated with the dietary, though, of course, not necessarily present as such in the food when eaten. The fact that all the five bulls were related to each other more or less closely by blood, as is shown

in the Pedigree Chart, naturally arouses the suspicion that the disease of the optic nerves, from which we believe that all these five bulls suffered, was the result of an hereditary disposition analogous to the well-known family optic neuritis of the young adult human male. But we do not as yet know enough about the natural history of this bovine blindness to venture upon any such conclusion.

[The authors then give some further twenty pages of cases of amaurosis from various causes, mainly collected from veterinary periodicals, the complete details of which can be obtained, if required, from the Royal London Ophthalmic Hospital Reports.]

A NEW CYLICOSTOME WORM FROM THE HORSE IN LONDON.

By R. T. LEIPER, D.Sc., M.B., F.Z.S.

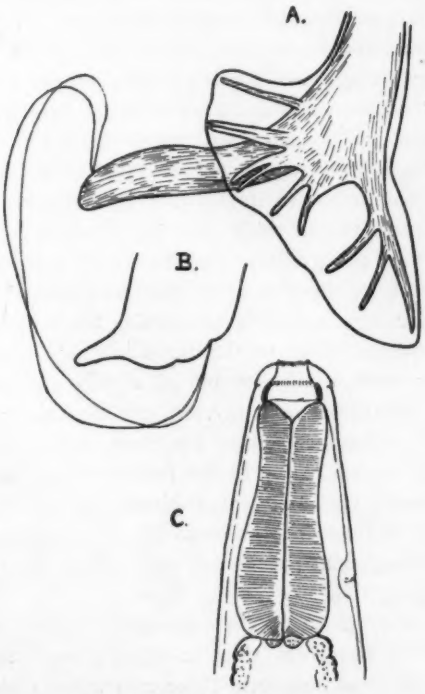
Wandsworth Research Scholar and Helminthologist at the London School of Tropical Medicine.

In 1910 I published in the *Proceedings of the Zoological Society* a list of the nematodes which occurred in the intestines of a number of horses slaughtered in London. The list included the following bursate nematodes: *Strongylus equinus, S. edentatus, S. vulgaris, Triodontophorus serratus, Gyalocephalus capitatus* and *Cylichnostomum elongatum*, and a new form recorded as *Cylichnostomum*, sp. nov.

Later, Mettam published a paper on certain cylichnostomes in Irish horses in the *Veterinary News*. Through the courtesy of Professor Mettam I had an opportunity of examining the material which comprised the species *C. nassatum* and *C. calicatum*. It is interesting that the cylichnostome, taken as the *C. tetracanthum*, Mehlis, by Looss in his "Monograph on the Sclerostomidæ of Horses and Donkeys in Egypt," has not yet come under my notice, nor had it been specifically determined as occurring in the British Isles. Annett, in his paper on "Sclerostomiasis in Equines," in the *Proceedings of the National Veterinary Association* for 1911, gives Looss' list of sclerostomes in Egypt, and states that "with the help of his descriptions and illustrations I have encountered no serious difficulties in iden-

tifying the many thousands of equine sclerostomes which I have collected, fixed, cleared and mounted during the last few years; in fact, but very little guidance has sufficed to enable one of my lady laboratory assistants to successfully differentiate the worms in my collection."

Nevertheless, no list of the species actually found is given, and it would appear that the work of identification did not pro-



A, B, the male genitals. C, the œsophagus.

ceed beyond that of the three genera in which these forms are contained, and which, it may be added, can readily be distinguished by the naked eye. In my own collections in London there occurred, as stated above, a species which I mentioned, but did not describe, as *Cylichnostomum*, sp. nov. The original material consisted solely of a pair of worms *in copula*. Camera lucida drawings were made at the time, and it was intended that

a full description should appear later along with the result of further investigations into the forms which actually occur in England. Owing to the great increase of motor traffic, I have had since few opportunities of collecting in London, and as the species presented certain striking peculiarities, it seems advisable to publish the original drawings with a brief description in the hope that those more fortunately situated and interested in the subject of intestinal parasites may assist in obtaining further information about the worm and its progeny.

The worms, male and female, are fairly large and stout as compared with the other species in the genus, ranging, in my recollection, about 12 mm. to 14 mm. in length. The mouth collar is separated by a slight constriction, the circumoral papillæ are not specially well defined. The chitinous mouth capsule has a depth in proportion to its transverse diameter as 2:5. The œsophagus is short and thick (fig. C). The execretory pore lies on a level with the greatest diameter of the œsophagus. The most striking features of the new species occur, however, in the male genitalia (figs. A, B). The spicules are very long and hair-like. The genital cone in the male is enormously developed, extending from beneath the bursal membrane, which is itself abnormally enlarged ventrally, in consequence of which the usually tiny prebursal papillæ are very stoutly developed and resemble the ventral pair. In the female the posterior extremity is tilted dorsally and ends in a blunt and well-defined stump. Immediately in front of the anus lies the vaginal orifice, into which, in the original specimens, the spicules of the male were inserted (fig. B).

In acknowledgment of the very kind manner in which Professor Mettam has from time to time placed material at my disposal, I name the new form *Cylicostoma* (*vel Cylichnostomum*) *mettami*, sp. nov.

THE PROPOSED "VETERINARY SURGEONS ACT" OF NEW SOUTH WALES.

By T. G. PALGRAVE, M.R.C.V.S.
Auckland, New Zealand.

On reading a copy of the above Act which has come into my possession I find that the proposed Veterinary Surgeons' Board "may refuse to register as a veterinary surgeon or may remove from the register any person who has ceased to possess or does not possess the qualifications in respect of which he was registered." This naturally gives rise to two questions: (1) How could any applicant be registered in New South Wales or elsewhere if he did not possess the qualifications in virtue of which he claimed registration, except by gross carelessness on the part of the body which granted him registration? (2) How can any person who has once possessed the qualifications required for registration cease to possess them?

Even if the possessor of a veterinary degree has been struck off the register he still possesses his diploma or degree, and also, presumably, the knowledge which enabled him to obtain it. I also find that the above-mentioned Board "may refuse to register as a veterinary surgeon or may remove from the register any person who has been guilty of infamous conduct in any professional respect." That the Board should have the power to remove from the register the name of any person guilty of "infamous conduct, &c.," is only right, though it would have been better had "infamous conduct" been defined. As the Act stands there is no indication of what constitutes "infamous conduct," so that the phrase may mean anything or nothing.

It is somewhat difficult to understand how any applicant for registration as a member of the profession can be refused registration on account of "infamous conduct in any professional respect."

Until he is registered he will not be a member of the profession, and therefore cannot be "guilty of infamous conduct in any professional respect," prior to registration; this being so, it would appear that, as the Act stands, he can be refused registration for a "professional" offence which—not being at the time a member of the profession—he could not commit. Can it be true that "the Law is a hass"?

Clinical Articles.

EMACIATION AND DEATH ASSOCIATED WITH NECROSIS AND ABSCESS FORMATION IN THE SPLEEN OF A HORSE.

By LIONEL B. BULL, B.V.Sc.

First Assistant, Government Laboratory of Pathology and Bacteriology, South Australia.

Recently portion of a spleen taken from a horse at a *post-mortem* examination was forwarded to me for microscopic examination by the Chief Inspector of Stock in this State, South Australia.

Previous to death the animal had shown a gradual wasting. As far as one can ascertain this lasted about two months, when the animal died. No other symptoms apart from the gradual emaciation and debility showed themselves. Mr. Loxton, G.M.V.C., Chief Veterinary Officer, was called to make a *post-mortem* examination.

Post-mortem examination revealed nothing but a very large spleen approximately four to five times the normal size. No other organ in the abdominal cavity showed any abnormality, and the contents of the thorax were normal. The spleen was larger and denser than normal. On section it was seen to be mottled throughout, and contained towards one end two large abscess cavities. The mottled appearance was due to the presence of irregular greyish necrotic areas, some of which showed a tendency towards breaking down and pus formation. These areas extended throughout the organ to the capsule, which was apparently thickened.

Portion of the spleen was placed in 10 per cent. formalin solution, and forwarded to the laboratory for examination.

Microscopically it is seen that there is considerable destruction of the spleen parenchyma. Under the low power of the microscope the capsule is seen to be extremely thickened; it is approximately 2 mm. in thickness. This thickening is mainly due to the development of new fibrous tissue. The muscle cells of the capsule are more or less completely degenerated. There is much œdema, and there are smaller and larger, more or less irregular spaces consisting entirely of fibrinous material with a few poly-

morphs in the meshwork. Here and there are to be seen larger or smaller irregular areas which take the basic stain deeply at their periphery, but in the centre are more or less degenerated (fig. 1). Under a higher power these areas are seen to be composed of masses of a filamentous Gram-negative bacillus (fig. 2). These organisms are granular or beaded in appearance (stained with carbol-thionin or Giemsa), and are morphologically identical with *Bacillus necrophorus* (Schmorl). In some instances chains of streptococci are seen to be associated with the bacilli. The lower margin of the capsule is marked by the presence of a thin band of plain muscle fibres.

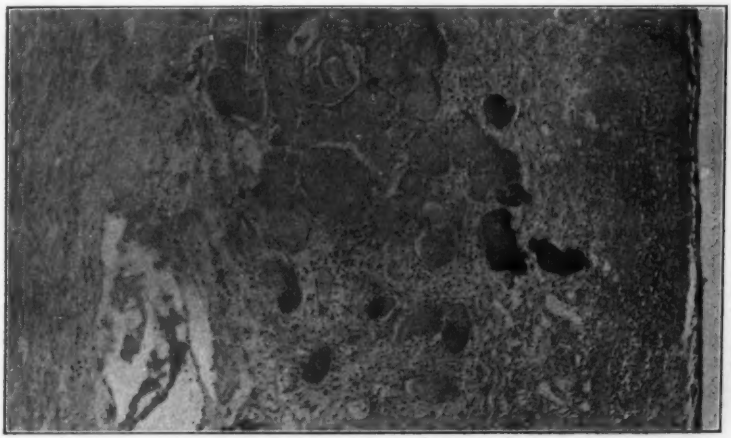


FIG. 1.—Showing thickened capsule of the organ, with œdematous spaces and large irregular masses of micro-organisms more or less degenerated. × 92.

Beneath the capsule are large areas containing leucocytes. These are the remains of the spleen parenchyma, but no Malpighian corpuscles are to be seen. These areas consist mainly of polymorphs and lymphocytes. They show some œdema and degeneration. In many of them are to be seen large irregular masses of bacilli, the cells in the vicinity of the invasion being more or less degenerated (fig. 3). There is much necrotic and œdematous material around these areas of leucocytes, and the trabeculæ of the gland are for the most part necrosed, the whole histological structure of the organ being confused.

Undoubtedly, the condition present in the organ is due to an

invasion of a Gram-negative bacillus with a slight secondary invasion of a streptococcus. Unfortunately, the bacillus could not be examined culturally as the tissue was preserved in formalin before being received. The resemblance between the bacillus present and *B. necrophorus* is so striking that one concludes that they are one and the same organs. Moreover, the character of the lesion present suggests the presence of the "necrosis bacillus." In the absence of cultural examination it cannot be definitely stated that the organism is *B. necrophorus* (Schmorl), but one is inclined to believe that it is.

The case is in many respects a remarkable one. There was

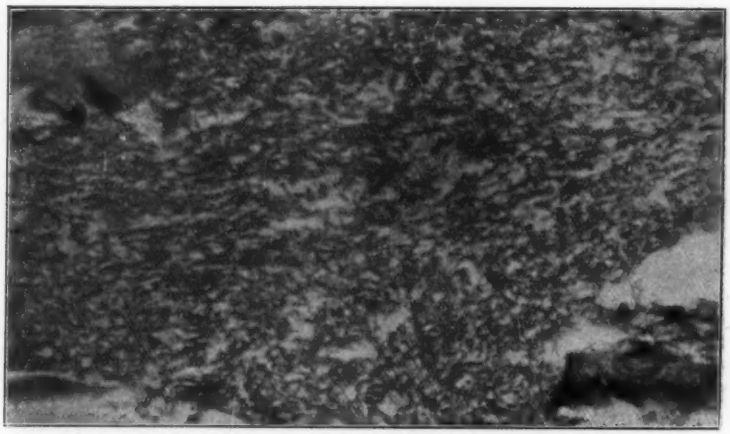


FIG. 2.—Showing a mass of filamentous Gram-negative bacillus resembling *B. necrophorus*. × 900.

no history of a wound through which the infection might have taken place. There were no other lesions present in either the organs of the abdominal or thoracic cavities. One is led to believe that infection has taken place through the mucous membrane lining the alimentary canal, as *B. necrophorus* lives a saprophytic existence in the canal. As far as one knows there was no lesion in the mucosa of the intestines of stomach, but possibly it may have been present and so small as to be overlooked. Evidently the spleen has caught up the infection from the blood-stream, and the organism there has produced the lesion described. Possibly the organism in these cases does not produce a local

lesion in the alimentary canal, for I have seen necrotic patches in the livers of deer and bovines due to the "necrosis bacillus" when the intestinal coats were perfectly normal in appearance. Necrotic patches in the liver and abscess formation in the lungs due to *B. necrophorus* are not uncommon, but I have not seen recorded the fact of this organism causing a lesion in the spleen.

We are learning more about the ubiquity of this organism, and the numerous lesions it is associated with in the lower animal. I record this case so that veterinarians, if they happen to meet with a similar one, may investigate the cause more thoroughly and confirm the microscopical findings by cultural examination.

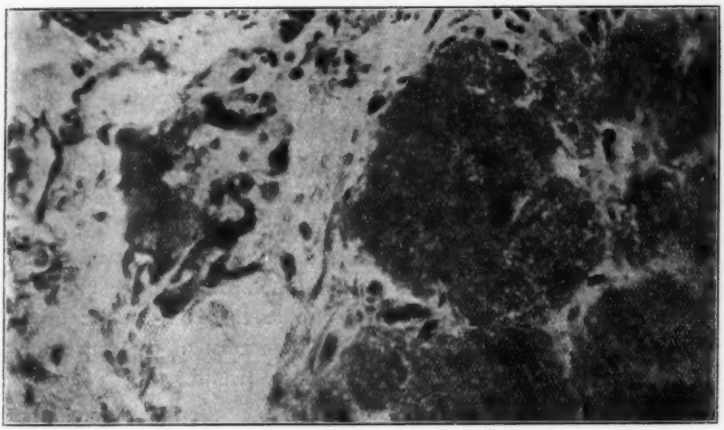


FIG. 3.—Showing an irregular mass of the micro-organisms in relation to the tissue elements which are more or less degenerated. × 700.

Since writing the above Mr. Wakeham, M.R.C.V.S., brought me portion of a spleen removed at *post-mortem* examination on a horse which had died from acute peritonitis following on rupture of a splenic abscess.

The spleen was enormously enlarged, and resembled very much in appearance the spleen above described. Apart from the abscess cavities there was an extension of the infection through the organ, giving to the parts affected a mottled appearance resembling somewhat that seen in the previous case. The necrosis was not so extensive as in the previous case, and there

was much greater tendency to breaking down and pus formation.

Culturally one was not able to demonstrate the presence of *B. necrophorus*. Martin's broth inoculated with the pus and kept both under ærobic and anærobic conditions showed in twenty-four hours only streptococci. Later other organisms grew, but *B. necrophorus* was not to be found. Microscopical examination of sections of the diseased tissue also failed to reveal the presence of bacilli resembling *B. necrophorus*.

One must regard this case as being simply a pyogenic infection of a streptococcus. That the infection should be primary in the spleen is unusual and worthy of note, for it rendered early diagnosis extremely difficult.

RUPTURE OF THE DIAPHRAGM.

By Chief Veterinary Surgeon DRECKERT.

The riding-horse "Orest" was struck under the body whilst jumping a hurdle. Two hours later I was called to him and found the following picture. The patient was bathed with sweat, sunken head, advanced and outstretched fore-limbs, and great distress in breathing; visible mucous membranes intensely reddened; pulse 66 per minute, powerful, even and regular; heart beats clear; temperature, 38·3 C.; respirations, 53; extremely laboured and of pure abdominal type; nostrils dilated to the full extent and at every respiration a quivering of the whole body. On closer examination I found as a cause of this quivering a contraction of the loin and abdominal muscles synchronous with inspiration. In the upper third and anterior portion of the lungs there was pronounced vesicular breathing. In the lower third of the field of auscultation, bounded anteriorly by the sixth and posteriorly by the eighth rib, there were intestinal murmurs and muscular murmurs with the previously described quiverings. Percussion in this region gave a tympanitic sound. Nothing abnormal could be detected with abdominal and pelvic organs. Dung and urine were voided. From these symptoms I diagnosed rupture of the diaphragm and entrance of a portion of intestine into the thoracic cavity.

In treatment I came to the conclusion to try and keep the

patient quiet, so that no greater segment of bowel should enter into the thorax. Further, the frequency of the breathing must be lessened and incarceration and inflammation of the intestine avoided. Intestinal activity must be limited, and finally the portion of intestine removed from the thorax.

Morphine hydrochlorate was injected subcutaneously and 50 c.c. of tincture of opium simplex given daily in bran tea. Rough and corn food were excluded and the animal only given bran tea to drink.

The quiverings disappeared in eight hours. For the first six days the patient breathed twenty-three to thirty times per minute. On the third day percussion and auscultation showed that the loop of intestine had gone back into the abdominal cavity. The patient was ridden after four weeks. This record seems to justify the assumption that symptomatic treatment warded off the customary unfavourable sequel of rupture of the diaphragm and the horse was rendered serviceable.—*Zeitschrift für Veterinärkunde.*

ON THE TREATMENT OF INDURATIONS AND THICKENINGS OF THE SKIN AND SUBCUTIS IN THE LIMBS OF HORSES.

By Staff Veterinary Surgeon MICHAELIS.

Indurations and thickenings of the lower parts of the limbs occur with great frequency in our troop horses. They arise, as a rule, from traumatic injuries to the skin or even periosteum from blows given by other horses or by kicking fixed objects. In other cases they consist of the residues of blood or lymph extravasations, or they remain after phlegmonous inflammation of the skin or subcutaneous tissue. The lameness, as a rule, disappears after the acute symptoms subside, so that the usefulness of the horse does not appreciably suffer or, at any rate, only for a short time. On the contrary, the appearance of the animal is considerably influenced by these indurations. Many horses are much disfigured and decline in market value. The veterinary surgeon is often asked how to remedy these disfigurements and defects.

I have given up bathing, massage, Pressnitz poultices, cam-

phor-spirit bandaging, fibrolysin injections and blistering, and now use iosorp-lanoline ointment. The iosorptol, according to the sensitiveness of the skin, is used in concentration of 1 : 10 up to equal parts of lanoline. The indurated and swollen parts of the skin are massaged daily from ten to fifteen minutes and then covered with woollen bandages. For complete success, however, it is absolutely necessary that the operation be carried out for some time, on an average for a period of four to eight weeks. In this way I have removed a whole series of fresh and old thickenings of the integument.

Two bad cases, one in an officer's horse in which the limb at the fetlock joint of a hind leg was almost double the circumference of its fellow, was cured after eight weeks' treatment and no difference in the limbs could be detected. A second horse, with a badly swollen pastern, was cured after six weeks' treatment.

Massage with the remedy should not be too violent, but the ointment rubbed in with light pressure, which may be strengthened according to the hardness of the thickening and sensitiveness of the skin.—*Zeitschrift für Veterinärkunde.*

INFLUENZA AMONGST REMOUNTS AND ITS TREATMENT WITH SALVARSAN.

By Staff Veterinary Surgeon JÄGER.

Out of 252 remounts, seventy-one fell ill with influenza. The course of the disease was insidious and the outbreak a rather severe one. Pleurisy and pneumonia were common and great heart weakness occurred in a few patients. Six remounts suffered from tendonitis as a sequel, two from paralysis of the pharynx, two from internal inflammation of the eyes, one from purpura, obstinate skin disease and paralysis of the sphincter ani muscles. In seven remounts roaring remained as a sequel.

Salvarsan, prepared at the military veterinary academy, was used in the treatment. Three grammes of salvarsan dissolved in 0·9 per cent. salt solution was infused into the jugular vein. One dose was sufficient. Quivering of muscles of the head and body, laboured breathing, motor disturbance, and a quick, weak pulse

are results of the injection. A marked drop in the temperature is observed. Salvarsan did not check the duration of the illness or stop the origin of infection.

Summarizing, it may be said:—

(1) Salvarsan causes a quick decline of fever and a shortening of the whole fever period.

(2) A slow favourable influence on the activity of the heart.

(3) A limiting and retarding of the pneumonia.

(4) Good effect on appetite and general condition—loss of weight seldom occurred.

(5) Shortening of convalescence.

(6) No checking or avoidance of dreaded subsequent effects—tendonitis, roaring, &c.

(7) Scarcely a checking or stoppage of the origin of illness.

(8) Scarcely any shortening of the duration of the illness. —*Zeitschrift für Veterinärkunde.*

AN IMPROVISED CHLOROFORM INHALER.

By C. E. HILL, M.R.C.V.S.

Darlington.

As the subject of anæsthetization of the horse in the standing position has recently been brought to the front again, perhaps the following will be of interest. In May last year I was called to attend a cart mare with complete prolapse of the uterus after foaling. It had been everted for about three hours, and the mare was now standing quietly in a stall. Not having a chloroform inhaler with me, I borrowed a small pillow case and fixed it with the aid of tapes on the animal's head. I then put about 2 oz. of chloroform on some cotton-wool and slipped it into the bottom of the pillow case under the nostrils. After about ten minutes she began to get dazed and to rock about unsteadily, her muscles relaxed, and I readily replaced the uterus, keeping it in position with a West's clamp. The animal made an excellent and complete recovery.

PARALYSIS OF THE INTERNAL POPLITEAL NERVE IN CATTLE.

By R. H. SMYTHE, M.R.C.V.S.
Redruth.

This is a condition which we have frequently met with in dairy cows, associated with but more frequently subsequent to parturition. The animals more commonly affected are those of the rich milking breeds, which carry little flesh. Jerseys and Guernseys are particularly liable to be affected.

The symptoms may appear during parturition, but usually from immediately afterwards to within a week after calving, and frequently occur as a sequel to milk-fever cases which have remained on the ground for several days. The cow appears unable to rise. If it be possible to get her on her feet the left hind limb will be the one affected.

After an extensive experience of this condition, which appears to be fairly common in the West of England, where the majority of cattle are of the best dairy type, we have never observed paralysis of the right limb, and the number of cases met with excludes the possibility of coincidence.

While standing, the animal can place little or no weight on the limb, and the digits are constantly held in a state of plantar flexion. The hock cannot be extended, but with each forward step it is over-extended, so that the foot is jerked upwards and forwards with the digits flexed backwards, and the anterior surface of the fetlock finally comes to the ground. In these early stages there is evidence of pain in the limb arising from deficient circulation.

In about 75 per cent. of cases recovery occurs naturally in a few days, and it is possible that thrombosis plays a considerable part in the early stages.

In other cases the animal lies constantly for from one to several weeks, and on rising at last shows exactly the same symptoms as above, excepting that there is now marked atrophy of the muscles at the back of the thigh, and later from constant knuckling over, the supernumerary digits at the back of the fetlock become driven into the fleshy portion of the heel and cause serious injuries. This appears to cause no pain, as sensation below the hock is very deficient. The animal loses flesh rapidly,

the milk diminishes, and after a protracted course the animal usually dies.

Treatment, such as blistering and setons over the course of the sciatic and popliteal nerves, is of no avail.

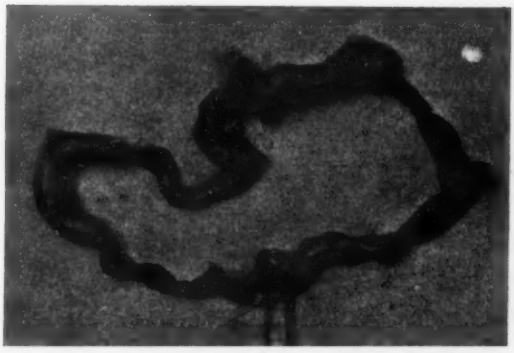
The cause is obscure and may be pressure on nerves during parturition, or more probably deficient blood supply to the nerve from embolism.

A CASE OF INTUSSUSCEPTION IN A BULLOCK.

By W. D. LINDSAY, M.R.C.V.S.

Broadway.

The subject was a yearling Shorthorn bullock in a thriving condition. The owner told me he had noticed the beast on the previous day to be dull and disinclined to eat. There was slight tympany of the rumen. I passed the probang and a fair amount of gas came away. A smart laxative was administered, followed by



A case of intussusception in a bullock.

draughts of ammon. carb. On the following day there was no practical result. The laxative had failed to act and the tympany was more pronounced than on the previous day. Refused all kinds of food and would not look at water. Probang again passed and another laxative given, but the following day brought no relief and the beast was certainly worse. I now began

to suspect that it had picked up some foreign substance. The animal was kept alive for three more days and then slaughtered. During the whole time it was never seen to lie down, was not restless in any way, and showed only a very slight inclination to strain.

Post-mortem examination showed an intussusception of the bowel 11 in. in length. The photograph shows the outer portion of the bowel split open and laid back so as to expose the intensely congested inner portion.

A disappointing case, but a most interesting *post-mortem*.

PARASITIC CYST IN THE BRAIN OF A HEIFER.

By H. A. REID, F.R.C.V.S., D.V.H.
Veterinary Laboratory, Wallaceville, New Zealand.

The accompanying illustration depicts the result of the development of a cœnurus cyst in the brain of a three-year-old heifer. About six months ago the animal was noticed to present certain abnormal symptoms consisting of more or less erratic movements and tendency to incline the head to one side. These symptoms were not pronounced and a general examination failed to reveal any definite cause.

Later on characteristic movements became more marked. The heifer walked in circles from left to right, the eyesight appeared to be defective, and in consequence of not being able to obtain its feed readily considerable loss of condition took place. Further examination proved that the animal was practically blind, although no structural alteration in the eyes could be observed. There was never any bulging or softening of the cranial bones, nor any pain evinced on pressure over this region.

The case was diagnosed as one of brain pressure involving the optic tracts, probably resulting from cystic growth.

Post-mortem examination showed congestion of the meningeal blood-vessels, and determined the presence of a hydatid cyst occupying the lateral ventricle of the right cerebral hemisphere, extending into the fore brain. The cyst wall was composed of greyish-white fibrous tissue, studded with yellow, granular material. The cyst, with its fluid contents, was about the size of a goose egg.

Photograph showing the brain and the cyst removed.

SARCOSPORIDIA OF THE ŒSOPHAGUS OF A SHEEP.

By W. D. LINDSAY, M.R.C.V.S.
Broadway.

I HAVE no history of this case. She was a ewe killed for sale for food. White "spots" were noticed on the gullet, which

Sarcosporidia of the œsophagus of a sheep.

was given to me to look at as a curiosity. What became of the carcase or whether any other part was affected I do not know. I did not have the opportunity to examine it .

SOME CASES OF TETANUS IN THE PIG.

By JOHN B. YOUNG, F.R.C.V.S.
Braintree, Essex.

SIXTEEN pigs, about 9 weeks old, very fine specimens and in exceptionally clean styes, were castrated in the usual way. After about a week the owner reported one dead and some of the others stiff. I found five very stiff and suffering obviously from tetanus, all of which died. The others were quite all right and in the best of health. Out of the six which died two were males and four females. The operation wounds in the affected and the healthy were quite normal.

Feline Clinicals.

WASP STING.

By T. G. PALGRAVE, M.R.C.V.S.

Auckland, N.Z.

On May 8 a large female tabby cat, about 9 months old, was brought to me by the owner with the history that about twenty minutes previously the cat had been playing in the garden while the owner was putting in some flowers, and when playing had been stung by a wasp.

The owner told me that immediately on being stung the cat behaved as though in a fit, rushing about wildly, running round in a narrow circle, mewing, and finally collapsing. From the time the cat was stung to the time she collapsed in a heap on the ground was about three minutes (as nearly as the owner could judge); previous to this occurrence the cat had always been perfectly healthy.

When brought to me the cat was breathing hurriedly and irregularly, the pulse was rapid and almost imperceptible, the pupils of the eyes greatly dilated, the left being more dilated than the right, there were occasional muscular twitchings of the trunk and limbs, and the cat was evidently in considerable pain, and cried pitifully but faintly. I was unable to find any marked swelling, but as the creature's coat was very long and thick that was not surprising. In order to allay the pain, I gave the cat 4 gr. of Merck's chloral hydrate in a little milk, which she took without giving any trouble, and ten minutes later followed up the chloral by 10 minims of aromatic spirit of ammonia well diluted with water, and with a little pulv. tragacanth. co. added; this was also taken without any trouble, and the cat was left with me for further observation.

During the next twenty minutes or so the cat appeared much better, walked about the room, taking stock of the contents, came and rubbed herself against me, and finally lay down in front of the fire, and within an hour of receiving the chloral was quietly asleep.

She slept for about an hour or a little more and then got up, and as soon as she was upon her feet exhibited a fresh set of symptoms.

Pain was apparently absent; breathing slow and deep; great weakness of the hind quarters; partial loss of control over the muscles of the hind limbs; coldness of the body and limbs; pupils of the eyes far less dilated than when she was first brought to me, and both pupils now dilated to an equal extent; pulse full and regular, numbering sixty-five beats per minute; temperature 99·8° F.

In spite of the want of control over the hind limbs she staggered about the room, clawed her way up on to my knee, and lay there, occasionally purring faintly.

She was given an inhalation of the medicinal liquor ammoniæ, the nose being first smeared with a little vaseline; then a drachm of French brandy. Within a few minutes she appeared more lively, licked the vaseline off her nose, and drank a little warm milk, after doing which she settled down again in front of the fire and dozed for an hour or so. She continued to doze for intervals varying from approximately an hour to two hours, waking up to wander about and come up to be nursed until 11 p.m., when she was left for the night, first receiving 2 drachms of castor oil. The waking intervals lasted approximately from half to one hour each, and during these intervals she occasionally took a little milk.

The next morning she was much better, though still very weak in the hind quarters, and the oil had acted well. During the day she improved steadily without further treatment, and was returned to her owner that evening. She has remained perfectly well ever since (June 1, 1913), *i.e.*, for three weeks.

The features of the case which interested me and made me think it worth recording were the symptoms which appeared when the cat woke up from the first sleep, which sleep was induced by the chloral.

They were not the symptoms caused by bee or wasp sting which she showed when first brought to me; neither were they the symptoms caused by an overdose of chloral, which are staggering, dilatation of the pupils, relaxation of all the muscles, and deep stupor, sometimes preceded by a stage of exaltation; nor were they the symptoms of a toxic dose of ammonia, which, as a general rule, are hurried pulse and respirations, salivation, cough, swollen tongue, dysphagia, and marked distress. Possibly the wasp venom had a markedly depressant effect on certain nerve centres; at any rate, I assumed such to be the case when I gave the brandy.

SUPERNUMERARY DIGITS IN A CAT.

By F. C. MINETT, B.Sc., M.R.C.V.S.
Royal Veterinary College, London.

The subject of this note was a dark tabby, male (castrated) cat, aged about 8 months.

As supernumerary digits with this distribution in the cat are by no means of common occurrence,* and this being an exceedingly well-marked case, I had the two accompanying photographs taken. From these it will be observed (and more especially from examination of the photographs of the right fore and right hind feet) that two extra digits were developed on each foot to the inner side of the four main digits. In the case of the fore feet

[* The presence of one supernumerary digit on each foot in the cat is not very uncommon in our experience. The chief interest in Mr. Minett's case, however, is the presence of two extra digits in each fore foot, a condition which is certainly rare. —Eds., *V. j.*]

the supernumerary digits were therefore situated between the four main digits and the small normally present internal digit. In the hind feet the development of each extra digit about equalled that of the largest main digit. In the case of the fore feet the innermost extra digit was developed to about the same

Fore feet, each showing two supernumerary digits.

Hind feet, showing one supernumerary digit.

extent as the largest main digit, the outermost extra digit being only about half this size.

Unfortunately, I was unable to ascertain from the owner of the cat any very exact details with regard to the other kittens in the same litter. The probability seems to be that these had no extra digits. The mother of the cat now in question, however, certainly had, at any rate, one extra digit on each foot.

A DISEASE OF POULTRY.

By R. H. SMYTHE, M.R.C.V.S.

Redruth.

An outbreak of a disease presenting some rather curious features broke out on a small poultry farm near Redruth.

At the commencement of the attack the owner, who considered the disease to be roup, destroyed a number of affected birds in the hope of abating the infection. However, the disease spread and a number of young chickens died, and at the time of my inspection several valuable brood hens were affected. The birds were penned in confined runs and were sadly in need of green stuff.

Symptoms.—The disease appeared as an epizootic and a number were affected simultaneously. The symptoms were loss of appetite, coughing, and a depressed appearance. The comb shrivelled and the bird could be picked up without resistance.

The lesions were confined to the oral mucous membrane. At either side of the lining of the lower half of the beak, adjacent to the edges of the tongue, appeared raised, creamy yellow ulcers, oval in shape, of about the size of a grain of wheat. These did not become confluent. The hard palate and the nasal cavities, the larynx and trachea, showed no lesions, neither were there any symptoms of catarrh. Diphtheritic membranes were never visible .

Microscopical Lesions.—Microscopically the ulcers appeared to be composed of massed together globular bodies without visible nucleus or definite formation, having somewhat the appearance of fat cells and which were probably degenerated and swollen epithelial cells. In addition to these there were present in the lesions several distinct organisms, the frequency with which they occurred being in the following order. Preparations were stained with gentian-violet.

(i) Rod-shaped single bacilli, 4 microns by 1·5 microns, much resembling anthrax bacilli.

(ii) Groups of various cocci.

(iii) Very characteristic spirillæ, about 4 to 5 microns in length, in which the body exhibited two complete spiral turns.

(iv) Oval bacteria, 3 microns in length, occurring in chains of three and four, with a very thick capsule. The contents stained deeply.

(v) An occasional very small oval psorosperm.

It is probable that the causal organisms were the spirillæ or oval bacilli, or both. The others were probably secondary or accidental bacilli. Psorosperms are frequently present in the digestive canal of birds.

Treatment Adopted.—The ulcers were removed together with portions of the oral mucous membrane by means of curved scissors. The parts were then freely dressed with tinct. iodi. Pot. permang. was added to the drinking water and the healthy birds removed to other pens.

Recovery occurred in cases treated early by this means.

Parliamentary.

[COPY.]

A BILL TO AMEND THE LAW RELATING TO THE SLAUGHTERING OF ANIMALS FOR HUMAN FOOD.*

BE IT ENACTED by the King's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons in this present Parliament assembled, and by the authority of the same, as follows:—

PART I.

The Humane Slaughtering of Animals.

I.—(1) After the commencement of this Act no animal (as hereinafter defined), any portion of which is intended to be used as human food, shall in any public or private slaughter-house or elsewhere be slaughtered except in accordance with the following regulations:—

(*a*) Every animal shall be stunned or otherwise rendered insensible before blood is drawn.

(*b*) No method or instrument shall be used for the purpose of stunning, rendering insensible, or slaughtering any animal except such methods and instruments as shall be approved by the Local Government Board.

(*c*) No animal shall be slaughtered in the sight of any other animal, and no carcase, portion, blood, or refuse of any slaughtered animal shall be deposited within sight or smell of any other animal awaiting slaughter.

(2) Any person who contravenes or fails to comply with or causes or permits any contravention or non-compliance with any of the above regulations shall be liable on summary conviction to a penalty not exceeding five pounds for a first offence, or in the case of a second or subsequent conviction to a fine not exceeding twenty pounds.

II.—(1) After the commencement of this Act no animal (as hereinafter defined), any portion of which is intended for human food, shall in any district be slaughtered or stunned or otherwise rendered insensible preparatory to slaughter, except by the holder of a licence granted by the Local Authority of such district.

(2) Such licences shall be personal and permissive only and not indicative of proficiency, and shall be granted only to such persons as the Local Authority shall think fit, being male persons of the age of eighteen years or upwards.

(3) Every such licence shall be effective only in the district of the Local Authority granting the same, and shall be valid for

* To be brought forward in Parliament by Mr. Arthur Lee, M.P., at the request of the "Council of Justice to Animals."

twelve months only from the date thereof, and may be renewed from time to time at the discretion of the Local Authority.

(4) Any such licence may upon conviction of the holder of any offence under this Act be cancelled by the order of the Court before whom such holder shall be convicted.

(5) A fee, not exceeding five shillings, may be charged by the Local Authority for each such licence and a fee not exceeding one shilling for each renewal. Such fees shall form part of the funds of the Local Authority, out of which the expenses of or incidental to this Act shall be payable.

(6) Any person who shall slaughter or attempt to slaughter any animal in contravention of this Section shall be liable on summary conviction to a fine not exceeding five pounds for each offence.

III.—The Local Government Board shall from time to time, by Order, approve such methods and instruments for the purposes mentioned in Regulation (*b*) in Section 1 of this Act as they shall consider best calculated to secure the humane slaughter of animals with as little suffering as possible, and may from time to time, by Order, make such further regulations in addition to and not being inconsistent with the regulations specified in Section 1 of this Act as shall, in their judgment, be desirable to secure the more humane slaughtering of animals for human food, and from and after the date specified in any such Order this Act shall have effect in the same manner in all respects as if such further regulations had been enacted by Clause 1 of this Act.

IV.—Any inspector of nuisances or medical officer of health of a Local Authority and every other officer or person appointed or authorized by a Local Authority shall have the right to enter any private slaughter-house in the district of such Local Authority at any hour by day or at any hour when business is or appears to be in progress, or is usually carried on therein, for the purpose of examining whether there is or has been any contravention of or non-compliance with the provisions of this Act, and if any person shall refuse to permit any such inspector of nuisances, medical officer of health, or other officer or person as aforesaid to enter any premises which he is entitled to enter under this Act, or shall obstruct or impede him in the exercise of his rights under this Act, he shall be liable on summary conviction to a penalty not exceeding £5 for each offence.

Part II.

Closing Private Slaughter-houses.

V.—At any time after the commencement of this Act any Local Authority may

(*a*) Acquire by agreement any private slaughter-house within the district of such Local Authority, and the interest or interests of any owner, lessee, or occupier thereof.

(*b*) Agree with the owner, lessee, or occupier of any private slaughter-house for the disuse thereof as a

slaughter-house on such terms and conditions as may be arranged between the parties.

VI.—If in any district a public slaughter-house has, either before or after the commencement of this Act, been provided,

(1) The Local Authority may at any time after the commencement of this Act publish by advertisement in a local newspaper circulating in the district a notice to the effect that the use of private slaughter-houses in the district, or in any part of the district specified in such notice, is to be discontinued after the expiration of such period (not being less than six calendar months after the date of publication of such advertisement) as may be specified in such notice.

(2) The Local Authority shall pay compensation to the owner, lessee, or occupier of every private slaughter-house in their district who may be injuriously affected by the exercise of the powers given by the last preceding sub-section.

(3) After the expiration of the period specified in such notice any person who shall in such district or in such specified part thereof, as the case may be, slaughter or cause to be slaughtered any animal any part of which is intended for human food elsewhere than in a public slaughter-house shall be liable on summary conviction to a penalty not exceeding £50.

VII.—The amount of any compensation payable under Section 6 of this Act shall in case of dispute be ascertained in the manner provided by the Public Health Acts, and Local Authorities may borrow money for the purposes of Clauses 5 and 6 of this Act in any manner in which they may borrow money for the purpose of erecting public slaughter-houses.

Part III.

Miscellaneous.

VIII.—The expenses incurred or payable by a Local Authority under this Act shall be provided as follows:—

In the case of a Borough, out of the Borough Fund or Borough Rate.

In the case of an Urban District not being a Borough, out of the District Fund or general District Rate.

In the case of a Rural District, as general expenses incurred in the execution of the Public Health Act, 1875.

In the case of the City of London, out of such funds applicable to the like purposes as the Local Authority shall think fit.

In the case of the County of London, out of any funds applicable for general County purposes.

IX.—Any penalty under this Act shall, if a Local Authority be the informer, go to such Local Authority, and all penalties recovered by a Local Authority shall be paid over to their Treasurer, and shall by him be carried to the account of the fund

applicable by such Local Authority to the general purposes of this Act.

X.—For the purposes of this Act,

(1) The word "animal" shall include any bull, cow, ox, heifer, steer, calf, ram, ewe, wether, sheep, lamb, pig, horse, mule, or ass.

(2) The areas named or described in the first column of the following table shall respectively be "districts," and the authorities named or described in the second column of the same table shall be the Local Authorities thereof respectively.

Boroughs	The Council of the Borough.
Urban Districts other than Boroughs	The District Council.
Rural Districts	The District Council.
The City of London ...	The Mayor, Aldermen, and Commons of the City of London in common council assembled.
The County of London ...	The County Council of London.

XI.—This Act shall not apply to Scotland or Ireland.

XII.—This Act shall come into operation on the first day of January, 1914.

XIII.—This Act may be cited as "The Humane Slaughtering of Animals Act, 1913."

Abstract.

TREATMENT OF HÆMOGLOBINÆMIA OF THE HORSE BY INFILTRATION OF AIR UNDER THE SKIN.

BRUNSCHWIG, a veterinary surgeon of Soissons, has had good results in the treatment of hæmoglobinæmia of the horse by pumping air into the subcutaneous tissue. He recorded his cases in the *Journal de Médecine Vétérinaire*, and Paris, a veterinary surgeon at Haye-du-Puits, confirms the good results by recording a case of his own in *Recueil de Médecine Vétérinaire*. The treatment consists in injecting air where the skin is loose, as at the neck, shoulder and chest, by means of a strong needle and an apparatus similar to that used in udder injections. An extensive subcutaneous emphysema is thus produced. Brunschwig passes the air over a mixture of turpentine, creosote, iodoform æther, thymol and camphor, and afterwards through wool. Treatment is simple and quite without danger. Brunschwig has treated four patients thus and all were cured. Paris had success in a very bad case by the same procedure.—*Zeitschrift für Veterinärkunde.*

Reviews.

Practical Bacteriology; Microbiology and Serum Therapy (Medical and Veterinary). A Text-book for Laboratory Use. By Dr. A. Besson, formerly Director of the Bacteriological Laboratories of the Military Hospitals of France. Translated and adapted from the Fifth French Edition by H. J. Hutchens, D.S.O., M.A., M.R.C.S., L.R.C.P., D.P.H. (Oxford), Heath Professor of Comparative Pathology and Bacteriology of the University of Durham. Pp. 892 + xxx. Illustrations 416, of which 149 are coloured. Published by Longmans, Green and Co., London. Price 36s. net.

The object of this work is indicated by the author in the preface to the first French edition, in which he says it "has been designed purely as a laboratory guide—a book which would both direct the beginner step by step, and at the same time afford to the more skilled worker such assistance as would enable him to pursue his researches in a profitable direction." The fifth edition appeared in 1911, so the translator obviously found it necessary to bring the matter up-to-date in the course of this work. He has also altered the arrangement to a slight extent while retaining the main features of the original work.

On the whole the author and translator have accomplished their object to an excellent degree. The work is divided into seven parts (there are only three in the original). Part I concerns itself with general technique, and deals with sterilization; culture media; incubators; methods of isolation and cultivation of organisms; the theory and use of the microscope (a very excellent chapter); methods of staining (a very good chapter for reference); experimental inoculations and *post-mortem* examinations; the collection and examination of materials: and a chapter on immunity, including sections on serums, antitoxins, agglutinins, opsonins, &c. Part II is devoted to the pathogenic bacteria. Part III to the parasitic fungi. Part IV to the pathogenic spirochætæ. Part V deals with the protozoan parasites, of such rapidly increasing importance, and Part VI considers the filtrable viruses. Part VII is quite a short one, and deals with the application of bacterial methods to the examination of water, sewage, and air.

From the veterinary standpoint there are several very serious omissions, for we are unable to find any reference to such all-important organisms as the bacillus of contagious abortion, the bacillus of chronic bacterial enteritis of cattle (Johne's disease), the *Bacillus necrophorus* and the *Botriomyces equi* (or *Discomyces equi*). With reference to distemper of the dog, no mention is made of Ferry's excellent work or of the bacillus described by him as *B. bronchisepticus canis*, which appears to play so important a *rôle* in distemper.

We are not convinced of the advisability of the substitution,

by the translator, of the generic names of Discomyces for Streptothrix. We have already noted that the terms Botriomyces and Discomyces are used synonymously, and as there is absolutely no relationship between Botriomyces and Streptothrix further confusion is likely to follow.

With reference to the question of handling animals more might have been said with advantage. We cannot imagine that a medical student would get much assistance from the following: "Bovine animals are, as a rule, easily managed. For long operations the animal is thrown on a vaccination inoculation table or placed in Vinsol's apparatus." Then, as to muzzling dogs, it is very improbable that any veterinary surgeon accustomed to handling dogs would muzzle him by passing "a piece of stout string into the animal's mouth behind the canine teeth, making a simple knot below the jaw, and then tying in a double knot on the nose." For taking blood from a dog for examination, no mention is made of the posterior auricular vein, certainly the most convenient situation for the purpose when only small quantities are needed.

The book as a whole is written in a very lucid manner, and cannot fail to be extremely useful as a laboratory guide both for students and others engaged in research.

A Text-book on Disease-producing Micro-organisms, especially intended for the Use of Veterinary Students and Practitioners. By Maximilian Herzog, M.D., Professor of Pathology and Bacteriology in the Veterinary College and to the German Hospital at Chicago. Pp. 644, with 214 illustrations and 14 coloured plates. Published by Baillière, Tindall and Cox. Price 21s. net.

This review should have appeared some time ago, the fault being that of the reviewer, who unfortunately mislaid the book. Further, he offers the author his apologies as the work is one which fills a distinct gap in veterinary literature, particularly as it is written in such a concise manner and so excellently illustrated that it is a text-book which the man in daily practice, who is some years removed from college days, can readily appreciate and understand. Especially is it likely to be of use just now to the English practitioner when called upon to administer the clauses of the new Tuberculosis Order of the Board of Agriculture, for both this disease and Johne's disease of cattle are fully dealt with. Anthrax, black quarter, glanders, strangles, actinomycosis, tetanus, malignant œdema, contagious abortion, canine typhoid, and all the everyday specific diseases are fully brought up to date, in most cases illustrated with splendidly executed photographs or colour plates; whilst others less commonly met in this country, such, for example, as epizootic lymphangitis, psittacosis of the parrot and other bird diseases, cattle plague, pneumonia of cattle, &c., are fully described.

A section of the book deals with public health work and is written to be of service to the inspector of food-stuffs, dealing with the bacteria of meat poisoning and the bacteriological

examination of milk, also with the human and bovine diseases transmissible through milk.

Part IV is set aside for the pathogenic protozoon, and includes the trypanosomes and piroplasms, also illustrated; whilst at the end of each chapter is a series of questions arranged for the benefit of students. In this Professor Hertzog has made a new departure, and one which may with advantage be followed by other writers, especially those who happen to be teachers.

The publishers have done their part well, the book being of convenient size, and the paper and print of the best.

As a text-book every student should get it, and as a work of reference no practitioner should be without it on his bookshelf.

The Eleventh Annual Report of the Imperial Cancer Research Fund (1912-1913).

It seems almost incredible that eleven years have passed since the establishment of the Imperial Cancer Research Fund, and the amount of work done in endeavouring to discover a cure for this terrible disease has been enormous—unluckily, up to the present, without the desired end being attained. Much knowledge has, however, been gained upon the subject of the malignancy and transmissibility of tumours, and the question of heredity in cancer cases has also received especial attention.

Quoting from the Report, the following paragraphs will give the clinician much food for thought:—

"The work of the year has been mainly directed to the marshalling of facts proved experimentally to be constant, and to the observation of the varying results obtained from prolonged propagation of strains of cancerous growth originally obtained from different spontaneous tumours.

"The statistical investigations as to the occurrence of cancer in India, our Colonies and Dependencies, and among uncivilized races, have been continued and are of great interest and value. It is gratifying to find that investigations carried out by the German Colonial Office confirm the results we had arrived at. The German Report states that 'it is certain that no new growth occurs in Germany which is not also found in the natives of the Tropics, and no new growth occurs in the Tropics which is not found in Germany.'

"During the year there has been more than the usual number of requests for information as to the existence of 'cancer-houses' or as to districts in which the occurrence of cancer was above the average. Investigation showed that in each case which could be satisfactorily examined, the age and sex of the population appeared to be the determining factor rather than local or climatic conditions.

"As in former years, various claims of possessing a cure for cancer were brought to the Fund's notice. Where any information which could be relied on was available, these claims were investigated, and were, I regret to say, not borne out by the evidence obtained.

"The breeding experiments to try and solve the question of heredity in cancer have been continued and the numbers have now reached so large a figure, that it is permissible to compare the two strains of mice. The total number of female mice bred was 800; of these 476 were descended from mice whose mother and one or both grandmothers were cancerous, and 324 from mice whose mother and both grandmothers were non-cancerous. Of the 476 of recent cancerous ancestry 98 or 20·58 per cent. developed cancer; while of the 324 of remote or non-cancerous ancestry 38 or 11·69 per cent. developed cancer. Only female mice were taken into account in this enumeration, for it is in them that spontaneous cancer most frequently occurs.

"The observation and study of the constancy and variability of the cells and histological structure in propagated cancer-tumours, together with researches into the acquisition and loss of immunity under certain circumstances, has been the principal work of the scientific staff during the year.

"It has been found that tumours apparently sarcomatous in character, occurring in the rabbit and guinea-pig, can be successfully propagated only in their own species, and are incapable of immunizing other kinds of animals against the inoculation of tumours.

"Further evidence has been obtained that the resistance to growth induced by the inoculation of normal or of tumour-tissue is identical in nature. In both, the maximum resistance is reached in about ten days, and is gradually lost, normal susceptibility to inoculation being regained in eighty days. Attention was first called in 1906 to the part played by the simultaneous absorption of tumour-tissue in hindering its own growth. After six or seven years of the observation and study of thirty-six strains of distinct primary origin, it became possible to divide these strains into groups, each having specific types of growth, and to select from them strains exhibiting the characteristic features of the group in the highest degree. The differences in these groups appear to be dependent on differences in the original tumours, and not on the soil in which they have been grown, in all cases normal mice having been made use of. Thus tumour strain '206' after five years of transplantation still takes and grows rapidly in every case, but all the tumours cure themselves and eventually disappear; while on the other hand strain '47' after seven years' propagation grows slowly in a small proportion of the mice experimented on, and the tumours disappear in the majority of them, but not in all cases. Strain '199' grows rapidly in more than one-half of the inoculations, but a high proportion of the tumours disappear. Tumour strains '68' and '50,' which formerly behaved in a somewhat similar manner, now grow in every animal inoculated and do not disappear.

"Propagated tumours which only exhibit transitory growth when inoculated into normal animals present exactly the same features as do normal tissue-cells; both agree in producing resistance to the growth of grafts of themselves inoculated subsequently, whilst normal or tumour-tissue taken from another

animal when inoculated produces resistance both to its own growth and to the development of grafted tumour-tissue. Experiments have shown that some strains of propagated tumours grow progressively, whilst other strains have a tendency to disappear, and it is found that inoculation with tumour-tissue from strains in which the growth is progressive confers less powers of resistance to subsequent inoculation with other tumour-tissue than does inoculation with tumour-tissue taken from strains of propagated tumours which have a tendency to disappear. The power of inducing resistance to the development of tumour-tissue appears, therefore, to be due to some property inherent in the tumour itself and not dependent on other causes."

The Journal of the Board of Agriculture, September, 1913.—The *Journal of the Board of Agriculture* for September contains a number of articles on various subjects of interest to farmers, one in particular being devoted to the question of tuberculosis in farm stock. This article gives, briefly, a *résumé* of the up-to-date knowledge on the subject of tuberculosis in popular language and indicates the lines which preventive measures should follow. Other subjects dealt with are those of the cultivation and care of grass land, of certain crops here and abroad, the wood-pigeon, the laying propensities of fowls, and the current market price of agricultural produce; altogether a useful summary of value to the thinking farmer and indirectly to the veterinary practitioner in country districts.

The American Journal of Veterinary Medicine.—The *American Journal of Veterinary Medicine* for August contains a number of original articles on clinical subjects of interest to the practitioner and an especially interesting account of the struggle which the veterinary profession is now making to obtain official status and recognition in the Army. Amongst the statements made in the article on the subject it seems incredible to read that when there was a severe outbreak of surra amongst the Army horses in the Philippines no American veterinarian was sent with the board of officers who went to India to study the disease in that country, and that even when lectures in farriery are given to the soldiers in an Army school the Army veterinarian is not put in authority. Again, not only in the inspection of meat, or the selection and purchase of animals, but even in the selection and purchase of the medicaments required for the treatment of the horses under his care, the Army veterinarian is placed in a very subordinate position. Such a position is intolerable and can only be altered by the creation, as in Europe, of a Veterinary Department, whose officers hold commissioned rank. We in England fully sympathize with our *confrères* in America, for it is only of late years that the Veterinary Corps in the British Army has been put upon a satisfactory footing.

Translation.

COUNT CESARESCO AND THE "CALCULATING HORSES."*

THE Elberfeld horses and their wonderful performances have attracted considerable public attention and, according to newspaper reports, several learned professors are convinced:—

"That the animals think in the abstract like human beings and that they understand spoken languages and intelligently answer questions by stamping with their fore feet at the letters of the alphabet which form the words of their replies; moreover, that they are endowed with mathematical talent, such as enables them to find the roots of numbers."

These pretensions have recently been refuted in an Italian pamphlet by the distinguished author of "The Psychology of the Horse,"† Count Eugenio Martinengo Cesaresco. He does not deny that the horses can indicate letters and numbers by giving the requisite number of knocks, but he denies that they do this as a result of their own thought. He maintains that they have been taught the performances which are so astonishing. Indeed, the greatest wonder of it all seems to exist in the trainer's patience and perseverance, and yet all the credit has been given to the horses. "It must all have taken a long time to teach and to fix in the memory, because numbers and letters make so little impression on the minds of horses." To train horses so highly is such a laborious process that it is hardly ever attempted. In all his experience the writer had only heard of one circus showman, an American, who had taught the numbers and the letters of the alphabet to a horse for performance in public. The case was to have been expertly tested some years ago. The Count recalls that he had been invited to join the Commission of Inquiry, which never came off. The horse and his owner left the country, wisely perhaps, before the arrangements had been completed. The proceedings had been initiated by Professor Hobday, who had been interested in reading "The Psychology of the Horse." He deemed the author to be a suitable examiner of the horse in question. Count Cesaresco's judgment of the somewhat similar attainments of the Elberfeld horses must, therefore, be particularly interesting to the readers of this Journal. He says:—

"Horses can be taught to give the right number of stamps for numbers and letters in connection with a spoken order of few words; but, having learned to stamp out, say, the hour when a clock is shown to them, in association with the words, 'What's o'clock?' the vocal sound of these words alone will cause them to stamp just the same without the presence of the clock as when it was placed before them.

* Sulla: "Pretesa capacita Mentale dei Cavalli di Elberfeld." Salo—Lago di Guarda.

† Published by Fisher Unwin.

"The sound of a spoken command, being associated with a particular action, this will be repeated when the same tones are heard again, because the tone of voice reminds the horses of that which they have previously learned to do and which they have so often repeated on hearing the same sound. It is an illusion to imagine that the literal sense of words is understood by horses. In fact, all languages are the same to them, because they only apprehend and respond to vocal inflections. Whatever language may be used in teaching a horse to start going, it soon learns to move at the sound of the given order, because with this sound there is the association of having originally been forcibly driven and obliged to move. Likewise the horse learns to stop at the word which is associated with restraint of a more or less painful kind.

"Military horses execute elaborate evolutions at the words of command, because these utterances (frequently hardly recognizable as words even by human listeners!) are associated with remembered coercion to move in a certain manner."

It is obvious from all this that the power of association is of the utmost utility in the training of horses. Count Cesaresco does not believe that horses think in the abstract. The nearest approach to abstract thought which he can allow is their thinking of some purposed action before it is accomplished. He maintains, however, that "such thoughts are always caused by some idea which comes from an instinct." Horses think about getting loose in order to help themselves to provender or to go with other horses, but they do not think about mathematical abstractions.

"It is incomprehensible to me that the Elberfeld horses can make mathematical calculations of *themselves* and that *they* can find the roots of numbers." Thus writes the expert horse-trainer, and he specially denies the "possibility of the existence of any actual mathematical faculty in the horse."

This is not surprising, considering that only a very highly-developed human mind is capable of perceiving the abstract ideas which are represented by numbers, and, as we are reminded: "The symbols employed in the expression of mathematical perceptions are of human origin. It was man who invented the particular arithmetical sign which is used to denote the root of a number. It must, therefore, be man alone who can explain its use to the horse."

It is apparently possible to bring this sign to the notice of the horse, but it is not conceivable that the animal could guess at its meaning without the interpretation of its inventor. The Elberfeld horses are surely not supposed to have a greater mental capacity than men, who certainly are not able to find roots of numbers without being taught the process.

The very notion is preposterous. It is hardly credible that the mathematical faculty could have been seriously claimed for the horses in question, so it is excusable for our experienced horse-trainer to allow himself a touch of irony in exclaiming:—

"It is assuredly a piece of great good fortune that the Elber-

feld horses should have 'of themselves' guessed and understood the theory of numbers and that they should have discovered the mode of finding their roots, for I am unable to comprehend how it would be possible to explain the process to them, believing, as I do, that they do not actually understand our human speech, and convinced as I am of their mental incapacity for understanding the roots of numbers and the mode of finding them.

"If the Elberfeld instructor does make his horses indicate the roots of numbers placed before them, these problems are not solved by the horses, but by the man.

"Neither is the stamping of the horses indicative of their ideas, as a certain professor has declared. The code of stamping has not been evolved by the horses, but by their instructor, who has taught them to stamp according to his established code and to give the answers which he himself dictates.

"The indication of numbers and letters by stamping is obviously an acquired art. There is nothing natural and spontaneous about it, for the natural horse paws the ground and stamps in impatience and anger, in defiance of man or of another animal, also to indicate hunger or thirst. Horses must be very highly trained before they will stamp for unnatural reasons.

"A noteworthy fact regarding Elberfeld horses is that they are entire. The selection of such horses is judicious. Stallions for obvious reasons are excitable, consequently they naturally paw the ground and stamp, so this action at least would not have to be taught to them, though their natural propensity would have to be adapted to their instructor's purposes. Other horses or mares would first have had to be taught to stamp, a thing they very rarely do."

As a result of long study the Count's comparisons between the natures of horses and of men are valuable. He says:—

"In the course of breaking-in many horses I have gathered that their disposition, as well as that of other animals, is much the same in kind as the human for deriving ideas from sensation."

Yet the degree of this capacity is shown in other passages to be very different!

The Count also considers that the horse's psychology is not very different from that of mankind. "As in man, so in all animals, ideas are born of impressions made on the senses by external things and are influenced by instincts and bodily needs. The latter are the mainsprings of the actions of animals."

Man is usually credited with some sort of a modifying moral sense, animals being frankly *un*-moral. Like man, animals learn through the association of one idea with another.

"There is nothing new or unreasonable in the belief that animals think, but their thoughts are concerned with their vital requirements, not with mathematics!

"They think of acting according to the promptness of their instincts and the suggestions of their bodily wants.

"The ancients not only knew that animals think, but they believed that once upon a time they could talk."

This is only true in the sense that they can always make them-

selves understood by man or by other animals, albeit without words:—

"Animals talk or express their wants and feelings through variations of vocal tone."

They have one tone of voice for making themselves heard, that is, for calling; another tone of voice shows fear and gives warning of danger; yet another tone belongs to desire to love; and again, a different voice is that of anger.

There is not much difference between the material life and needs of animals and of men. The principal instincts of horses are the same as those of men. Some animals can feel envy, jealousy, sympathy, hate, &c., with regard to some of their fellows. The secondary instincts of animals vary according to the conformation of their bodies and the peculiar requirements which arise therefrom.

The first instinct in all is to look for food. The second instinct is to look for selfish advantage. This is the egotism which makes the strong desire to dominate the weak in order to obtain something more than they. This instinct is most marked in man, who is the most domineering of all animals; living in society being only made possible to men through fear of the penalties which threaten the inordinately arrogant.

Nowadays some scientists are saying that punishment is useless, that it does not serve to deter people from usurpations upon the rights of others; but the ancients all knew very well that impunity leads to crime, which is the result of excessive self-assertion (or prepotency).

The third instinct is that of life preservation, which makes animals aware of dangers that have to be avoided. Here is the province of fear, which is bound up with the instinct of self-preservation.

Through the fourth instinct pleasure is sought and pains avoided, and it is by means of these factors that we are enabled to teach horses and other animals, and to induce them to work in our service.

By their instinct horses know many things without being taught, and they learn other things through their experience of associated good or ill. They seek those who feed them, because eating is a pleasure which they associate with the feeder. They run away from those who have struck them, because they associate the pain of the blow with the striker.

This experienced horse-trainer concludes his pamphlet with the assertion that

"The alleged mental capacity of the Elberfeld horses is a supposition without any logical basis."

I. S. C.

Personal.

MR. T. G. PALGRAVE, M.R.C.V.S., has been appointed a Hon. Veterinary Surgeon to the Auckland Agricultural and Pastoral Association, one of the most important and influential organizations of the kind in New Zealand.

A NEW Veterinary Society has been formed in the South Island of New Zealand, with Mr. John Danskiss, M.R.C.V.S., as its first President, and Mr. Alexander Johnston, F.R.C.V.S., as Hon. Secretary.

Letters and Communications, &c.

Captain Williams; Mr. Motton; Mr. Mitchell; Mr. Payne; Professor Liautard; Dr. A. Hughes; Mr. C. J. Dixson; Mr. W. M. Scott; Mr. G. Mayall; Captain Deacon; Mr. A. E. Willett; Mr. T. B. Goodall; Mr. J. F. D. Tutt; Captain Pallin; Mr. Mitter; Professor Sisson; Professor Craig; Dr. Burton Rogers; Professor Law; Mr. Bevan; Mr. Haskell.

Books and Periodicals, &c., Received.

The American Veterinary Review; Journal of the Royal Army Medical Corps; Recueil de Médecine Vétérinaire; L'Hygiène de la Viande et du Lait; Revue Générale de Médecine Veterinaire; Der Tierarzt; Zeitschrift für Veterinärkunde; Berliner tierärztliche Wochenschrift; Osterreichische Wochenschrift für Tierheilkunde; La Clinica Veterinaria; Revista de Medicina Veterinaria; Board of Agriculture and Fisheries; Department of Agriculture and Technical Instruction for Ireland; Kennel Gazette, Agricultural Journals for the Union of South Africa and for Rhodesia; American Journal of Veterinary Medicine.

NOTE.—All communications should be addressed to 8, Henrietta Street, Covent Garden, London, W.C. Telephone, 4646 Gerrard. Telegrams, "Baillière, London."

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